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Vol V of V  
Part 1 of 2

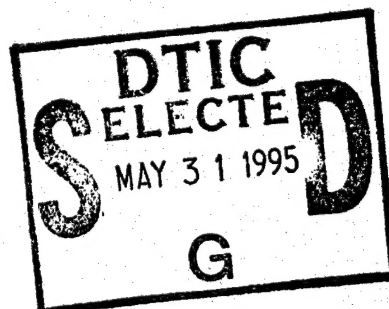


**AIR FORCE SITE CHARACTERIZATION AND ANALYSIS PENETRO-  
METER SYSTEM (AFSCAPS): LASER-INDUCED FLUORESCENCE CONE  
PENETROMETER - ANALYTICAL TESTING DATA SHEETS  
(VOL V OF V - PART 1 OF 2)**

James D. Shinn, Wesley L. Bratton

Applied Research Associates, Inc.  
RFD #1, Box 120-A, Waterman Road  
South Royalton, VT 05068

ENVIRONICS DIRECTORATE  
139 Barnes Drive, Suite 2  
Tyndall AFB FL 32403-5323



December 1994

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This technical report has been reviewed by the Public Affairs Office (PA) and is releasable to the National Technical Information Service (NTIS) where it will be available to the general public, including foreign nationals.

This report has been reviewed and is approved for publication.



BRUCE J. NIELSEN  
Project Manager



MICHAEL G. KATONA, PhD  
Chief Scientist, Environics Directorate



ROBERT G. LAPOE, Lt. Col, USAF, BSC  
Chief, Site Remediation Division



NEIL J. LAMB, Colonel, USAF, BSC  
Director, Environics Directorate

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19. ABSTRACT (Continue on reverse if necessary and identify by block number) A prototype Laser-Induced Fluorescence-Electric Cone Penetrometer Test (LIF-CPT) system was demonstrated at Tinker Air Force Base (Tinker AFB), Oklahoma as an innovative technology for delineating soil contamination resulting from fuel spills. Applied Research Associates, Inc. (ARA) and the North Dakota State University (NDSU) conducted the development program for the Air Force using LIF-CPT components developed within the Triservice Site Characterization and Analysis Penetrometer System (SCAPS) effort. Major components of the system consisted of ARA's cone penetrometer system coupled with NDSU's tunable laser fluorimeter. To enable rapid, efficient and minimally invasive site characterization, the LIF-CPT probe data output was linked to ARA's real-time analysis system with three-dimensional modeling and scientific visualization capabilities. Field testing at Tinker AFB was conducted to evaluate the LIF-CPT probe. During the testing program, 112 soundings at eight contaminated sites were conducted. At select locations, soil and water samples were obtained with CPT or drilling technologies, and tested using analytical procedures to confirm the presence of fuel contamination. This volume documents the analytical testing results from the off-site laboratory used during the demonstration program.					
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## PREFACE

This report was prepared by Applied Research Associates, Inc. (ARA), Waterman Road, South Royalton, VT 05068, under contract FO8635-88-C-0067, SETA SSG Subtask 8.00, for the Air Force Civil Engineering Support Agency, Engineering and Services Laboratory, Tyndall Air Force Base, Florida 32403-6001. North Dakota State University was a subcontractor to ARA and fabricated and assisted in demonstrating the laser spectrometry technology.

This work was sponsored by the Oklahoma City Air Logistics Command, Directorate of Environmental Management (OC-ALC/EM) and the U.S. Air Force Civil Engineering Support Agency (AFCESA). Ms. Beverly Allen of OC-ALC/EM and Mr. Bruce Nielsen of AFCESA/RAVW were the Government technical program managers.

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## **EXECUTIVE SUMMARY**

### **A. OBJECTIVE**

The Air Force Site Characterization and Analysis Penetrometer System (AFSCAPS) project was initiated to further develop the combined technology of the U.S. Army Corps of Engineers Waterways Experiment Station's (WES) SCAPS program and the Air Force Laser Spectroscopy Program. The purpose of the program was to enable the Air Force to address characterization, remediation and post-remedial monitoring of fuel-contaminated sites in a more efficient and effective manner. The primary objectives of this program were to develop, demonstrate, and evaluate the Laser-Induced Fluorescence-Cone Penetrometer Technique (LIF-CPT) system for the characterization of petroleum fuel-contaminated sites.

### **B. BACKGROUND**

The Department of Defense is conducting nationwide remediation efforts to clean up contaminated military and weapons facilities. It has been estimated that remediation of these DoD facilities will require expenditure of \$24 billion dollars by the DoD over the next 30 years. Identifying, characterizing and developing remediation plans for these contaminated sites is a high priority for the DoD.

Potential cost savings realized through cone penetrometer-based environmental site investigations have fostered federal research and development efforts by the U.S. Army, Navy and Air Force. Together they have supported the Tri-service Site Characterization and Analysis Penetrometer System (SCAPS) program. To better characterize hazardous waste sites, improved investigative tools and methods are being developed for use with cone penetrometers. One such tool is the laser fluorimeter. Initially developed at WES, specifically for use in detecting diesel fuel marine (DFM) for the U.S. Navy, the Air Force has sponsored additional research to modify the laser fluorimeter/cone penetrometer system for use in detecting jet fuel, heating oil and gasoline-contaminated soils.

### **C. SCOPE**

To accomplish the objectives of this project the following tasks were completed:

- ◆ evaluation of the current LIF state-of-art,
- ◆ development of specifications for the new LIF system,
- ◆ fabrication and laboratory testing/evaluation of the LIF-CPT system,
- ◆ field demonstrations and evaluations at Tinker and Carswell AFBs of the AF LIF-CPT system.

This technical report is organized in five separate volumes:

- ◆ Volume I discusses the development of the LIF-CPT system including a review of the current state-of-art of the WES SCAPS program and NDSU's research work.
- ◆ Volume II is a review of the sites investigated at Tinker AFB.
- ◆ Volume III presents results from Carswell AFB.

- ◆ Volume IV consists of comprehensive appendix of all LIF-CPT logs, boring logs, WTM plots, and demonstration, test and evaluation (DT&E) plans for both Tinker and Carswell AFB's.
- ◆ Finally, Volume V contains the laboratory analytical data for samples obtained at Tinker AFB.

#### **D. METHODOLOGY**

The WES system employed a nitrogen laser system that is limited to the emission of a single excitation wavelength of 337 nanometers (nm). This is useful for the detection of large multi-ring fuels such as DFM but it has been shown that light fuels such as jet fuels and gasoline have only weak spectral signatures when excited with a 337 nm light pulse. Excitations at shorter wavelengths, such as 280 to 290 nm for jet fuels and 260 nm for gasoline, provide much stronger and distinctive fluorescence spectra. One of the primary goals of this project was to develop and test a tunable laser that allows the investigator to select the most appropriate wavelength depending on the contaminant of interest and site conditions.

Under this program, North Dakota state University (NDSU) developed and tested a laser fluorimeter to analyze aromatic hydrocarbons in situ. The NDSU system features a full-wavelength tunable dye system with a pulsed laser (Nd:YAG), fiber optic probe and detection system. Applied Research Associates, Inc. (ARA) incorporated the laser system with a cone penetrometer truck producing a robust site assessment tool capable of quickly locating and quantifying fugitive petroleum, oil and lubricant (POL) contamination.

#### **E. TEST DESCRIPTION**

The test program consisted of two phases, (1) evaluation of the LIF-CPT probe under laboratory conditions, and (2) evaluation of the LIF-CPT probe under field conditions.

The laboratory testing consisted of three major efforts (1) selecting and characterizing representative soils from Tinker AFB, (2) evaluation of the effect of bending the fiber-optic cable on the LIF response, and (3) determining the sensitivity of the LIF system to expected fuel contaminants.

During the field demonstration and evaluation program several objectives were addressed. Primarily, this phase demonstrated that a CPT deployed LIF system could be used to locate fuel-contaminated soils to at least the regulatory limits of 100 ppm. Other criteria such as system reliability, stability and repeatability, correlation of LIF-CPT intensity to contaminant concentration and evaluation of the sources of data scatter in the chemical and LIF-CPT data were evaluated. In addition, the cost effectiveness of the LIF-CPT was evaluated as well as its ability to provide highly detailed real-time data for on-site graphical representation.

#### **F. RESULTS**

The following summarizes the results from the laboratory and field evaluations:

- ◆ Attenuation due to bending in the fiber optic cable was not significant except at the probe end where the fibers are bent 90 degrees in a 1.25 inch radius. High

mechanical stresses caused the glass fibers to separate from the nylon jacket and move relative to the focal plane resulting in unacceptable baseline levels.

- ◆ The fluorescence spectra of JP-4 and JP-5 were indistinguishable using the LIF-CPT system. The WTMs of jet fuel and heating oil were noticeably different.
- ◆ Fluorescence of PAHs dominate the emission spectra of the subject fuels for excitation in the ultraviolet region shorter than 300 nm. The optimal excitation wavelength for continuous LIF-CPT soundings is 280-290 nm or shorter.
- ◆ The variation in the fluorescence spectral distribution is dependent on the matrix (i.e., neat, dissolved, on soil).
- ◆ Humic acids' contribution to LIF in soils play an important role in the long wavelength fluorescence spectral distribution.

## **G. CONCLUSIONS**

Evaluation of the AFSCAPS at Tinker AFB demonstrated that the combination of an LIF-CPT, onsite analytical laboratory, and onsite three-dimensional visualization software can provide more detailed and timely mapping of fuel contamination than can be accomplished by conventional drilling and sampling programs. The LIF-CPT can provide a continuous profile of the contaminant location and relative concentration with detection levels to at least the regulatory limits for TPH.

## **H. RECOMMENDATIONS**

A two-pronged approach is recommended for future development of the LIF-CPT. One aspect should be the continuation of the field studies to provide a broader database for further evaluation of the LIF-CPT probe in a wider range of geologic settings. The other aspect should include improvements in instrumentation, and laboratory and field methods in order to establish the bias, reproducibility, and error of the LIF-CPT system for regulatory acceptance.

## **I. APPLICATION**

The LIF-CPT system could be implemented by the Air Force as the primary technology to conduct environmental site assessments where petroleum, oils and lubricants are involved.

## **J. BENEFITS**

This technology could significantly reduce the time / cost of conducting site assessments and provide superior data to use as a basis for choosing an appropriate remedial strategy.

## **K. TRANSFERABILITY OF TECHNOLOGY**

Virtually all industrial contractors involved with subsurface environmental site assessments where petroleum oils and lubricants are concerned could profit from the use of LIF-CPT technology. The industry in general is constantly seeking ways to conduct business faster, cheaper, and better; CPT-LIF fulfills these criteria.

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## **APPENDIX A**

### **ANALYTICAL RESULTS FROM SOIL SAMPLES FROM NORTH TANK AREA**





2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-B01-SS1 13'-14'  
Collected By: JPJ  
Date & Time Taken: 09/17/92 1220  
Other Data: Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 221082 Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	2100 09/30/92		EPA Method 3550	LM
Xylenes	nd	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/21/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1430 09/28/92	1	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1700 09/23/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	2205 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	4	mg/kg	2205 09/30/92	0.05	EPA Method 610	KB
Acrolein	ND	ug/kg	1403 09/30/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1403 09/30/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1403 09/30/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1403 09/30/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1403 09/30/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM

Continued



11/05/92

221082 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1403 09/30/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	1403 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1403 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1403 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1403 09/30/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	380	mg/kg	1300 09/21/92	10	EPA Method 418.1	TES

## Quality Assurance for the SET with Sample 221082

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
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Phenols

Continued



11/05/92

221082 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<.02	mg/l				1430	09/28/92	WMB
	Standard	.051	mg/l	.050		102	1430	09/28/92	WMB
221671	Duplicate	.06	mg/l	.06		100	1430	09/28/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1300	09/21/92	TES
	Standard	50	PPM	50		100	1300	09/21/92	TES
221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

**SHIFT 1 STANDARD**

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

**BATCH 1 BLANK**

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount
Naphthalene	ND(.05) mg/l
2-Methylnaphthalene	ND(.05) mg/l

**BROMOFLUOROBENZENE**

## Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0	---	---	100.0	PASS
96	5.0	9.0	95	8.2	PASS
173	---	2.0	174	0.2	PASS
174	50.0	---	95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS

Continued



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221082 Continued

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177 5.0 9.0 176 7.3 PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



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11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

**Sample Identification:** NTA-B02-SS1 12'-14'

**Collected By:** JPJ

**Date & Time Taken:** 09/17/92 1615

**Other Data:** Tinker AFB

**Bottle Data:** 1 -- Unpreserved Plastic/Glass (00)

**Lab Sample Number:** 221081 **Received:** 09/18/92

**Client:** ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->2	g->ml	2151 09/25/92		EPA Method 3550	LM
Xylenes	nd	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/21/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1430 09/28/92	1	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1700 09/23/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1715 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1715 09/30/92	0.05	EPA Method 610	KB
Acrolein	ND	ug/kg	1545 09/29/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1545 09/29/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1545 09/29/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1545 09/29/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1545 09/29/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM

Continued



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221081 Continued

Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1545 09/29/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	1545 09/29/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1545 09/29/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1545 09/29/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1545 09/29/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	22	mg/kg	1300 09/21/92	10	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221081

.....  
Sample #      Description      Result      Units      Dup/Std Value      Spk Conc.      Percent      Time      Date      By

Phenols

Continued





11/05/92

221081 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<.02	mg/l				1430	09/28/92	WMB
	Standard	.051	mg/l	.050		102	1430	09/28/92	WMB
221671	Duplicate	.06	mg/l	.06		100	1430	09/28/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1300	09/21/92	TES
	Standard	50	PPM	50		100	1300	09/21/92	TES
221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

**SHIFT 1 STANDARD**

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

**BATCH 1 BLANK**

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount
Naphthalene	ND(.05) mg/l
2-Methylnaphthalene	ND(.05) mg/l

**BROMOFLUOROBENZENE**

## Ion Abundance Criteria

m/z	Min %	Max %	Mass Actual	Status
50	15.0	40.0	95 17.6	PASS
75	30.0	60.0	95 54.0	PASS
95	100.0	---	--- 100.0	PASS
96	5.0	9.0	95 8.2	PASS
173	---	2.0	174 0.2	PASS
174	50.0	---	95 90.1	PASS
175	5.0	9.0	174 7.5	PASS
176	95.0	101.0	174 95.0	PASS

Continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

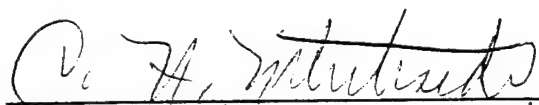
*Analytical Chemistry • Utility Operations*

221081 Continued

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177 5.0 9.0 176 7.3 PASS

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-04-SS1 9.3-10.9  
Collected By: JPJ  
Date & Time Taken: 09/03/92 1230  
Other Data: Tinker AFB  
Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 219892 Received: 09/04/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Acrolein	ND	ug/kg	2246 09/14/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	2246 09/14/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	2246 09/14/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	2246 09/14/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	2246 09/14/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	2246 09/14/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM

Continued  
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2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

219892 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	2246 09/14/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Toluene	14	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	2246 09/14/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	2246 09/14/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	2246 09/14/92	5.0	EPA Method 8240	PM

Quality Assurance for the SET with Sample 219892

BROMOFLUOROBENZENE

Ion Abundance Criteria

m/z	Min %	Max %	Mass Actual	Status
50	15.0	40.0	95 15.4	PASS
75	30.0	60.0	95 46.4	PASS
95	100.0	---	--- 100.0	PASS
96	5.0	9.0	95 6.8	PASS
173	---	2.0	174 0.2	PASS
174	50.0	---	95 63.1	PASS
175	5.0	9.0	174 6.9	PASS

Continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

*Analytical Chemistry • Utility Operations*

11/05/92

219892 Continued

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176	95.0	101.0	174	95.0	PASS
177	5.0	9.0	176	6.6	PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-04-SS1

Collected By: JPJ

Date & Time Taken: 09/03/92 1230

Other Data: 9.3'-10.9'

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 219896 Received: 09/04/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	nd	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		0900 09/09/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1500 09/23/92	1	EPA Method 420.1	WMB
Naphthalene	ND	mg/kg	1400 09/16/92	.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1400 09/16/92	.05	EPA Method 610	KB
Acrolein	ND	ug/kg	0120 09/15/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0120 09/15/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0120 09/15/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0120 09/15/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0120 09/15/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0120 09/15/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM

Continued



PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Bromodichloromethane	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	0120 09/15/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0120 09/15/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0120 09/15/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0120 09/15/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	26	mg/kg	1000 09/09/92	10	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 219896

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Hydrocarbon Sonication Extract.									
220015	Duplicate	Completed	MG/KG	Completed		100	0900	09/09/92	TES
Phenols									
	Blank	<.02	mg/l				1500	09/23/92	WMB

Continued

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Standard	.050	mg/l	.050		100	1500	09/23/92	WMB
221286	Duplicate	ND	mg/l	ND		100	1500	09/23/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1000	09/09/92	TES
	Standard	54	PPM	50		108	1000	09/09/92	TES
219942	Duplicate	300	MG/KG	300		100	1000	09/09/92	TES
220015	Duplicate	1500	MG/KG	1300		114	1000	09/09/92	TES

**SHIFT 1 STANDARD**

09/16/92 1230

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	300	304	mg/l	1%
2-Methylnaphthalene	200	250	mg/l	22%

**BATCH 1 BLANK**

09/16/92 1230

Analyzed by KB using EPA Method 610

Compound Name	Amount
Naphthalene	ND(10) mg/l
2-Methylnaphthalene	ND(10) mg/l

**BROMOFLUOROBENZENE**

**Ion Abundance Criteria**

m/z	Min %	Max %	Mass Actual	Status
50	15.0	40.0	95 15.4	PASS
75	30.0	60.0	95 46.4	PASS
95	100.0	---	--- 100.0	PASS
96	5.0	9.0	95 6.8	PASS
173	---	2.0	174 0.2	PASS
174	50.0	---	95 63.1	PASS
175	5.0	9.0	174 6.9	PASS
176	95.0	101.0	174 95.0	PASS
177	5.0	9.0	176 6.6	PASS

Continued

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-04-SS2

Collected By: JPJ

Date & Time Taken: 09/03/92 1300

Other Data: Tinker AFB/0 15.3'

Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 219893 Received: 09/04/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	nd	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Acrolein	ND	ug/kg	2325 09/14/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	2325 09/14/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	2325 09/14/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	2325 09/14/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	2325 09/14/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	2325 09/14/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM

Continued



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Analytical Chemistry • Utility Operations

11/05/92

219893 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	2325 09/14/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	2325 09/14/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	2325 09/14/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	2325 09/14/92	5.0	EPA Method 8240	PM

Quality Assurance for the SET with Sample 219893

BROMOFLUOROBENZENE

Ion Abundance Criteria

m/z	Min %	Max %	Mass Actual	Status
50	15.0	40.0	95 15.4	PASS
75	30.0	60.0	95 46.4	PASS
95	100.0	---	--- 100.0	PASS
96	5.0	9.0	95 6.8	PASS
173	---	2.0	174 0.2	PASS
174	50.0	---	95 63.1	PASS
175	5.0	9.0	174 6.9	PASS

Continued



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*Analytical Chemistry • Utility Operations*

11/05/92

219893 Continued

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176	95.0	101.0	174	95.0	PASS
177	5.0	9.0	176	6.6	PASS

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President





2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-04-SS3 13'-16.8'  
Collected By: JPJ  
Date & Time Taken: 09/03/92 1430  
Other Data: Tinker AFB  
Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 219894 Received: 09/04/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	200	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Acrolein	ND	ug/kg	1218 09/15/92	500	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1218 09/15/92	500	EPA Method 8240	PM
Benzene	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Bromoform	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1218 09/15/92	50	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1218 09/15/92	50	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1218 09/15/92	50	EPA Method 8240	PM
Chloroform	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Chloromethane	ND	ug/kg	1218 09/15/92	50	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM

Continued



11/05/92

219894 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	1218 09/15/92	5.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Ethyl benzene	200	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Toluene	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1218 09/15/92	50	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1218 09/15/92	50	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1218 09/15/92	25	EPA Method 8240	PM

## Quality Assurance for the SET with Sample 219894

## BROMOFLUOROBENZENE

## Ion Abundance Criteria

m/z	Min %	Max %	Mass Actual	Status
50	15.0	40.0	95 17.4	PASS
75	30.0	60.0	95 48.1	PASS
95	100.0	---	--- 100.0	PASS
96	5.0	9.0	95 7.2	PASS
173	---	2.0	174 0.3	PASS
174	50.0	---	95 57.9	PASS
175	5.0	9.0	174 7.1	PASS

Continued



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176	95.0	101.0	174	95.6	PASS
177	5.0	9.0	176	6.1	PASS

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-04-SS2/SS3 13-16.8'  
Collected By: JPJ  
Date & Time Taken: 09/03/92 1430  
Other Data: Tinker AFB/Flowing above 16.3'  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 219895 Received: 09/04/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->ml	2133 09/09/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		0900 09/09/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1500 09/23/92	2	EPA Method 420.1	WMB
2-Methylnaphthalene	9	mg/kg	1425 09/16/92	.05	EPA Method 610	KB
Acenaphthene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Acrolein	ND	ug/kg	1257 09/15/92	500	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1257 09/15/92	500	EPA Method 8240	PM
Aldrin	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Anthracene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Benzene	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Benzidine	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM

Continued

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Bis(2-chloroethyl)ether	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Bromoform	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1257 09/15/92	50	EPA Method 8240	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Carbon Tetrachloride	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
4-Chloro-3-methylphenol	ND	ug/kg	1908 09/14/92	670	EPA Method 8270	PM
Chlorobenzene	30	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1257 09/15/92	50	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1257 09/15/92	50	EPA Method 8240	PM
Chloroform	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Chloromethane	ND	ug/kg	1257 09/15/92	50	EPA Method 8240	PM
2-Chloronaphthalene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
2-Chlorophenol	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Dibromochloromethane	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
1,3-Dichlorobenzene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM



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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
3,3'-Dichlorobenzidine	ND	ug/kg	1908 09/14/92	670	EPA Method 8270	PM
Bromodichloromethane	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
- 1,1-Dichloroethane	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
- 1,1-Dichloroethene	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
2,4-Dichlorophenol	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Dichlorodifluoromethane	ND	ug/kg	1257 09/15/92	5.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Diethyl phthalate	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
2,4-Dimethylphenol	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
2-Methyl-4,6-dinitrophenol	ND	ug/kg	1908 09/14/92	1700	EPA Method 8270	PM
2,4-Dinitrophenol	ND	ug/kg	1908 09/14/92	1700	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Ethyl benzene	290	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Fluoranthene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM

Continued  
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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hexachlorobutadiene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Methylene Chloride	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Naphthalene	5300	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
2-Nitrophenol	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
4-Nitrophenol	ND	ug/kg	1908 09/14/92	1700	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Pentachlorophenol	ND	ug/kg	1908 09/14/92	1700	EPA Method 8270	PM
Phenanthrene	5600	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Phenol	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Toluene	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
1,1,1-Trichloroethane	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM



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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Trichlorofluoromethane	ND	ug/kg	1257 09/15/92	50	EPA Method 8240	PM
2,4,6-Trichlorophenol	ND	ug/kg	1908 09/14/92	330	EPA Method 8270	PM
Vinyl Chloride	ND	ug/kg	1257 09/15/92	50	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1257 09/15/92	25	EPA Method 8240	PM
Xylenes	250	ug/kg	1257 09/15/92		EPA Method 8240	PM
Total Petroleum Hydrocarbons	26000	mg/kg	1000 09/09/92	500	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 219895

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Hydrocarbon Sonication Extract.									
220015	Duplicate	Completed	MG/KG	Completed		100	0900	09/09/92	TES
Phenols									
	Blank	<.02	mg/l				1500	09/23/92	WMB
	Standard	.050	mg/l	.050		100	1500	09/23/92	WMB
221286	Duplicate	ND	mg/l	ND		100	1500	09/23/92	WMB
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				1000	09/09/92	TES
	Standard	54	PPM	50		108	1000	09/09/92	TES
219942	Duplicate	300	MG/KG	300		100	1000	09/09/92	TES
220015	Duplicate	1500	MG/KG	1300		114	1000	09/09/92	TES

SHIFT 1 STANDARD

09/16/92 1230

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	300	304	mg/l	1%
2-Methylnaphthalene	200	250	mg/l	22%

BATCH 1 BLANK

09/16/92 1230

Analyzed by KB using EPA Method 610

Compound Name	Amount
Naphthalene	ND(10) mg/l
2-Methylnaphthalene	ND(10) mg/l

Continued



**DECAFLUOROTRIPHENYLPHOSPHINE**

Ion Abundance Criteria


m/z	Min %	Max %	Mass Actual		Status
51	30.0	60.0	198	38.3	PASS
68	---	2.0	69	0.0	PASS
69	---	---	---	51.7	PASS
70	---	2.0	69	0.0	PASS
127	40.0	60.0	198	50.1	PASS
197	---	1.0	198	0.0	PASS
198	100.0	---	---	100.0	PASS
199	5.0	9.0	198	8.1	PASS
275	10.0	30.0	198	21.7	PASS
365	1.0	---	198	2.3	PASS
441	---	100.0	443	74.4	PASS
442	40.0	---	198	57.1	PASS
443	17.0	23.0	442	20.8	PASS

**BROMOFLUOROBENZENE**

Ion Abundance Criteria

m/z	Min %	Max %	Mass Actual		Status
50	15.0	40.0	95	17.4	PASS
75	30.0	60.0	95	48.1	PASS
95	100.0	---	---	100.0	PASS
96	5.0	9.0	95	7.2	PASS
173	---	2.0	174	0.3	PASS
174	50.0	---	95	57.9	PASS
175	5.0	9.0	174	7.1	PASS
176	95.0	101.0	174	95.6	PASS
177	5.0	9.0	176	6.1	PASS

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-B05-SS1 13'-14' Hot

Collected By: JPJ

Date & Time Taken: 09/17/92 1230

Other Data: Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221085 Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->3	g->ml	1530 09/21/92		EPA Method 3550	DDM
Total Sonic Extr. W/Hex Exch.	10->1	g->ml	1058 09/30/92		EPA Method 3550	DDM
Xylenes	nd	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/21/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1430 09/28/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1630 09/24/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1018 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	10	mg/kg	1018 09/30/92	0.05	EPA Method 610	KB
Acenaphthene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Acrolein	ND	ug/kg	1438 09/30/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1438 09/30/92	100	EPA Method 8240	PM
Aldrin	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Anthracene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Benzene	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Benzidine	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM

Continued



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221085 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Benzo(a)pyrene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Bromoform	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1438 09/30/92	10	EPA Method 8240	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Carbon Tetrachloride	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1438 09/30/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1438 09/30/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	1438 09/30/92	10	EPA Method 8240	PM
2-Chloronaphthalene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Chrysene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Dibromochloromethane	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
1,3-Dichlorobenzene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM

Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
1,2-Dichlorobenzene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	0801 09/21/92	2000	EPA Method 8270	PM
Bromodichloromethane	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	1438 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Diethyl phthalate	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Ethyl benzene	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Fluoranthene	1500	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Fluorene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM

Continued

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hexachloroethane	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Isophorone	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Methylene Chloride	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Naphthalene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Phenanthrene	2500	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Pyrene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
1,2,4-Trichlorobenzene	ND	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
1,1,1-Trichloroethane	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1438 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1438 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1438 09/30/92	5.0	EPA Method 8240	PM
2-Methylnaphthalene	1700	ug/kg	0801 09/21/92	1000	EPA Method 8270	PM
Total Petroleum Hydrocarbons	4600	mg/kg	1300 09/21/92	100	EPA Method 418.1	TES

Continued



11/05/92

221085 Continued

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Quality Assurance for the SET with Sample 221085

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Phenols</b>									
	Blank	<.02	mg/l				1430	09/28/92	WMB
	Standard	.051	mg/l	.050		102	1430	09/28/92	WMB
221671	Duplicate	.06	mg/l	.06		100	1430	09/28/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1300	09/21/92	TES
	Standard	50	PPM	50		100	1300	09/21/92	TES
221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount
Naphthalene	ND(.05) mg/l
2-Methylnaphthalene	ND(.05) mg/l

DECAFLUOROTRIPHENYLPHOSPHINE

Ion Abundance Criteria

m/z	Min %	Max %	Mass Actual	Status
51	30.0	60.0	198 45.8	PASS
68	---	2.0	69 0.0	PASS
69	---	---	---	PASS
70	---	2.0	69 1.5	PASS
127	40.0	60.0	198 54.1	PASS
197	---	1.0	198 0.0	PASS

Continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

221085 Continued

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198	100.0	---	---	100.0	PASS
199	5.0	9.0	198	7.6	PASS
275	10.0	30.0	198	22.0	PASS
365	1.0	---	198	1.7	PASS
441	---	100.0	443	64.0	PASS
442	40.0	---	198	49.6	PASS
443	17.0	23.0	442	18.9	PASS

### BROMOFLUOROBENZENE

#### Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0	---	---	100.0	PASS
96	5.0	9.0	95	8.2	PASS
173	---	2.0	174	0.2	PASS
174	50.0	---	95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS
177	5.0	9.0	176	7.3	PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-B06-SS1 12'-17' Hot F. O.

Collected By: JPJ

Date & Time Taken: 09/17/92 0920

Other Data: Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221083 Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	2118 09/30/92		EPA Method 3550	LM
Xylenes	nd	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/21/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1430 09/28/92	1	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2000 09/23/92		EPA Method 420.1	KC
Naphthalene	.9	mg/kg	2230 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	2230 09/30/92	0.05	EPA Method 610	KB
Acrolein	ND	ug/kg	1700 09/29/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1700 09/29/92	100	EPA Method 8240	PM
Benzene	44	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1700 09/29/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1700 09/29/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1700 09/29/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM

Continued  
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Analytical Chemistry • Utility Operations

11/05/92

221083 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1700 09/29/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	1700 09/29/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Ethyl benzene	390	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1700 09/29/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1700 09/29/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1700 09/29/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	25000	mg/kg	1300 09/21/92	500	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221083

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
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Phenols

Continued



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Analytical Chemistry • Utility Operations

11/05/92

221083 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<.02	mg/l				1430	09/28/92	WMB
	Standard	.051	mg/l	.050		102	1430	09/28/92	WMB
221671	Duplicate	.06	mg/l	.06		100	1430	09/28/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1300	09/21/92	TES
	Standard	50	PPM	50		100	1300	09/21/92	TES
221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

#### SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

#### BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount
Naphthalene	ND(.05) mg/l
2-Methylnaphthalene	ND(.05) mg/l

#### BROMOFLUOROBENZENE

##### Ion Abundance Criteria

m/z	Min %	Max %	Mass Actual	Status
50	15.0	40.0	95 17.6	PASS
75	30.0	60.0	95 54.0	PASS
95	100.0	---	--- 100.0	PASS
96	5.0	9.0	95 8.2	PASS
173	---	2.0	174 0.2	PASS
174	50.0	---	95 90.1	PASS
175	5.0	9.0	174 7.5	PASS
176	95.0	101.0	174 95.0	PASS

Continued



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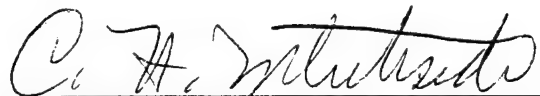
*Analytical Chemistry • Utility Operations*

221083 Continued

Page 4

177 5.0 9.0 176 7.3 PASS

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-B07-SS1 13'-16'  
Collected By: JPJ  
Date & Time Taken: 09/17/92 1100  
Other Data: Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 221084 Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	2120 09/30/92		EPA Method 3550	LM
Xylenes	nd	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/21/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1430 09/28/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1630 09/24/92		EPA Method 420.1	KC
Naphthalene	2	mg/kg	2215 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	2215 09/30/92	0.05	EPA Method 610	KB
Acrolein	ND	ug/kg	1516 09/30/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1516 09/30/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1516 09/30/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1516 09/30/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1516 09/30/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM



11/05/92

221084 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1516 09/30/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	1516 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Ethyl benzene	42	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1516 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1516 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1516 09/30/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	9600	mg/kg	1300 09/21/92	100	EPA Method 418.1	TES

## Quality Assurance for the SET with Sample 221084

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
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## Phenols

Continued



11/05/92

221084 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<.02	mg/l				1430	09/28/92	WMB
	Standard	.051	mg/l	.050		102	1430	09/28/92	WMB
221671	Duplicate	.06	mg/l	.06		100	1430	09/28/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1300	09/21/92	TES
	Standard	50	PPM	50		100	1300	09/21/92	TES
221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

**SHIFT 1 STANDARD**

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

**BATCH 1 BLANK**

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount
Naphthalene	ND(.05) mg/l
2-Methylnaphthalene	ND(.05) mg/l

**BROMOFLUOROBENZENE**

## Ion Abundance Criteria

m/z	Min %	Max %	Mass Actual	Status
50	15.0	40.0	95 17.6	PASS
75	30.0	60.0	95 54.0	PASS
95	100.0	---	--- 100.0	PASS
96	5.0	9.0	95 8.2	PASS
173	---	2.0	174 0.2	PASS
174	50.0	---	95 90.1	PASS
175	5.0	9.0	174 7.5	PASS
176	95.0	101.0	174 95.0	PASS

Continued



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*Analytical Chemistry • Utility Operations*

221084 Continued

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177 5.0 9.0 176 7.3 PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-B08-SS1 13'-15' Hot F. O.

Collected By: JPJ

Date & Time Taken: 09/17/92 1700

Other Data: Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221086 Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	10->2	g->ml	1116 09/30/92		EPA Method 3550	DDM
Xylenes	nd	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/21/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1430 09/28/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1630 09/24/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1845 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	22	mg/kg	1845 09/30/92	0.05	EPA Method 610	KB
Acrolein	ND	ug/kg	1600 09/30/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1600 09/30/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1600 09/30/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1600 09/30/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1600 09/30/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM

Continued





11/05/92

221086 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1600 09/30/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	1600 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	14	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1600 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1600 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1600 09/30/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	35000	mg/kg	1300 09/21/92	500	EPA Method 418.1	TES

## Quality Assurance for the SET with Sample 221086

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
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Phenols

Continued



11/05/92

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Analytical Chemistry • Utility Operations

221086 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<.02	mg/l				1430	09/28/92	WMB
	Standard	.051	mg/l	.050		102	1430	09/28/92	WMB
221671	Duplicate	.06	mg/l	.06		100	1430	09/28/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1300	09/21/92	TES
	Standard	50	PPM	50		100	1300	09/21/92	TES
221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

**SHIFT 1 STANDARD**

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

**BATCH 1 BLANK**

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount
Naphthalene	ND(.05) mg/l
2-Methylnaphthalene	ND(.05) mg/l

**BROMOFLUOROBENZENE****Ion Abundance Criteria**

m/z	Min %	Max %	Mass Actual	Status
50	15.0	40.0	95 17.6	PASS
75	30.0	60.0	95 54.0	PASS
95	100.0	---	--- 100.0	PASS
96	5.0	9.0	95 8.2	PASS
173	---	2.0	174 0.2	PASS
174	50.0	---	95 90.1	PASS
175	5.0	9.0	174 7.5	PASS
176	95.0	101.0	174 95.0	PASS

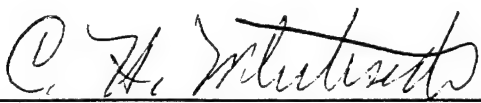
Continued

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177      5.0      9.0      176      7.3      PASS

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I certify that the results were generated using the above specified methods.

  
\_\_\_\_\_  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-B09-SS2 @13'-15'  
Collected By: JPJ  
Date & Time Taken: 09/18/92 1025

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221300 Received: 09/21/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	10->1	g->ml	1512 09/30/92		EPA Method 3550	DDM
Xylenes	nd	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/25/92		EPA Method 3550 *MOD	PLH
Phenols	ND	mg/kg	1700 09/30/92	.02	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1800 09/29/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1755 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1755 09/30/92	0.05	EPA Method 610	KB
Acrolein	ND	ug/kg	1645 09/30/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1645 09/30/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1645 09/30/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1645 09/30/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1645 09/30/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM

Continued

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1645 09/30/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	1645 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1645 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1645 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1645 09/30/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	ND	mg/kg	1420 09/28/92	10	EPA Method 418.1	PLH

Quality Assurance for the SET with Sample 221300

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
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Phenols

Continued



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Analytical Chemistry • Utility Operations

11/05/92

221300 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
221301	Blank	<.02	mg/l				1700	09/30/92	WMB
	Standard	.052	mg/l	.050		104	1700	09/30/92	WMB
	Duplicate	ND	mg/l	ND		100	1700	09/30/92	WMB
	<b>Total Petroleum Hydrocarbons</b>								
221122	Blank	<10	mg/kg				1420	09/28/92	PLH
	Standard	50	ppm	50		100	1420	09/28/92	PLH
	Duplicate	460	mg/kg	450		102	1420	09/28/92	PLH
	Duplicate	2800	mg/kg	4300		142	1420	09/28/92	PLH

#### SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

#### BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount
Naphthalene	ND(.05) mg/l
2-Methylnaphthalene	ND(.05) mg/l

#### BROMOFLUOROBENZENE

##### Ion Abundance Criteria

m/z	Min %	Max %	Mass Actual	Status
50	15.0	40.0	95 17.6	PASS
75	30.0	60.0	95 54.0	PASS
95	100.0	---	--- 100.0	PASS
96	5.0	9.0	95 8.2	PASS
173	---	2.0	174 0.2	PASS
174	50.0	---	95 90.1	PASS
175	5.0	9.0	174 7.5	PASS
176	95.0	101.0	174 95.0	PASS

Continued



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221300 Continued

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177 5.0 9.0 176 7.3 PASS

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-B10-SS1 13'-14'  
Collected By: JPJ  
Date & Time Taken: 09/17/92 1700  
Other Data: Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221080

Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	2045 09/25/92		EPA Method 3550	LM
Xylenes	nd	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/21/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1430 09/28/92	1	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1700 09/23/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1700 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1700 09/30/92	0.05	EPA Method 610	KB
Acrolein	ND	ug/kg	1935 09/29/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1935 09/29/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1935 09/29/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1935 09/29/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1935 09/29/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM

Continued



PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1935 09/29/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	1935 09/29/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1935 09/29/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1935 09/29/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1935 09/29/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	22	mg/kg	1300 09/21/92	10	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221080

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Phenols									



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221080 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<.02	mg/l				1430	09/28/92	WMB
	Standard	.051	mg/l	.050		102	1430	09/28/92	WMB
221671	Duplicate	.06	mg/l	.06		100	1430	09/28/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1300	09/21/92	TES
	Standard	50	PPM	50		100	1300	09/21/92	TES
221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

### SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

### BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount
Naphthalene	ND(.05) mg/l
2-Methylnaphthalene	ND(.05) mg/l

### BROMOFLUOROBENZENE

#### Ion Abundance Criteria

m/z	Min %	Max %	Mass Actual	Status
50	15.0	40.0	95 17.6	PASS
75	30.0	60.0	95 54.0	PASS
95	100.0	---	--- 100.0	PASS
96	5.0	9.0	95 8.2	PASS
173	---	2.0	174 0.2	PASS
174	50.0	---	95 90.1	PASS
175	5.0	9.0	174 7.5	PASS
176	95.0	101.0	174 95.0	PASS


Continued

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177	5.0	9.0	176	7.3	PASS
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I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-B11-SS1 @13'-14'  
Collected By: JPJ  
Date & Time Taken: 09/18/92 1130

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221299 Received: 09/21/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	10->1	g->ml	1107 09/30/92		EPA Method 3550	DDM
Xylenes	nd	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/25/92		EPA Method 3550 *MOD	PLH
Phenols	ND	mg/kg	1700 09/30/92	.02	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1800 09/29/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1820 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1820 09/30/92	0.05	EPA Method 610	KB
Acrolein	ND	ug/kg	1805 09/30/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1805 09/30/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1805 09/30/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1805 09/30/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1805 09/30/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM

Continued



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Analytical Chemistry • Utility Operations

11/05/92

221299 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1805 09/30/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	1805 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1805 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1805 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1805 09/30/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	15	mg/kg	1420 09/28/92	10	EPA Method 418.1	PLH

Quality Assurance for the SET with Sample 221299

.....  
Sample #      Description      Result      Units      Dup/Std Value      Spk Conc.      Percent      Time      Date      By  
Phenols

Continued



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Analytical Chemistry • Utility Operations

11/05/92

221299 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
221301	Blank	<.02	mg/l				1700	09/30/92	WMB
	Standard	.052	mg/l	.050		104	1700	09/30/92	WMB
	Duplicate	ND	mg/l	ND		100	1700	09/30/92	WMB
	<b>Total Petroleum Hydrocarbons</b>								
221122	Blank	<10	mg/kg				1420	09/28/92	PLH
	Standard	50	ppm	50		100	1420	09/28/92	PLH
	Duplicate	460	mg/kg	450		102	1420	09/28/92	PLH
	Duplicate	2800	mg/kg	4300		142	1420	09/28/92	PLH

#### SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

#### BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount
Naphthalene	ND(.05) mg/l
2-Methylnaphthalene	ND(.05) mg/l

#### BROMOFLUOROBENZENE

##### Ion Abundance Criteria

m/z	Min %	Max %	Mass Actual	Status
50	15.0	40.0	95 17.6	PASS
75	30.0	60.0	95 54.0	PASS
95	100.0	---	--- 100.0	PASS
96	5.0	9.0	95 8.2	PASS
173	---	2.0	174 0.2	PASS
174	50.0	---	95 90.1	PASS
175	5.0	9.0	174 7.5	PASS
176	95.0	101.0	174 95.0	PASS

Continued



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11/05/92

221299 Continued

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177 5.0 9.0 176 7.3 PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President

## **APPENDIX B**

### **ANALYTICAL RESULTS FROM WATER SAMPLES FROM NORTH TANK AREA**





2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-B01  
Collected By: JPJ  
Date & Time Taken: 09/18/92 1100

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221302 Received: 09/21/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	nd	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Acrolein	ND	ug/l	2037 09/30/92	1000	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	2037 09/30/92	1000	EPA Method 8240	PM
Benzene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Bromoform	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Bromomethane	ND	ug/l	2037 09/30/92	100	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Chloroethane	ND	ug/l	2037 09/30/92	100	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	2037 09/30/92	100	EPA Method 8240	PM
Chloroform	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Chloromethane	ND	ug/l	2037 09/30/92	100	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/l	2037 09/30/92	10	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Ethyl benzene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Tetrachloroethene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Toluene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Trichloroethene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	2037 09/30/92	100	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	2037 09/30/92	100	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	2037 09/30/92	50	EPA Method 8240	PM
Total Petroleum Hydrocarbons	37	mg/l	1100 09/24/92	10	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	PLH

Quality Assurance for the SET with Sample 221302

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1100	09/24/92	TES
	Blank	ND	MG/L				1100	09/24/92	TES
	Standard	50	PPM	50		100	1100	09/24/92	TES
221518	Duplicate	240	MG/KG	230		104	1100	09/24/92	TES

**BROMOFLUOROBENZENE**

Ion Abundance Criteria

Continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

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221302 Continued

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m/z	Min %	Max %	Mass Actual		Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0	---	---	100.0	PASS
96	5.0	9.0	95	8.2	PASS
173	---	2.0	174	0.2	PASS
174	50.0	---	95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS
177	5.0	9.0	176	7.3	PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-B02  
Collected By: JPJ  
Date & Time Taken: 09/18/92 1200

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221303 Received: 09/21/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	ng	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Acrolein	ND	ug/l	1128 09/30/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	1128 09/30/92	100	EPA Method 8240	PM
Benzene	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/l	1128 09/30/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/l	1128 09/30/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	1128 09/30/92	10	EPA Method 8240	PM
Chloroform	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/l	1128 09/30/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM

Continued

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	55	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/l	1128 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	6.3	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	1128 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	1128 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	1128 09/30/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	ND	mg/l	1100 09/24/92	10	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	PLH

Quality Assurance for the SET with Sample 221303

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1100	09/24/92	TES
	Blank	ND	MG/L				1100	09/24/92	TES
	Standard	50	PPM	50		100	1100	09/24/92	TES
221518	Duplicate	240	MG/KG	230		104	1100	09/24/92	TES

**BROMOFLUOROBENZENE**

Ion Abundance Criteria

Continued



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Analytical Chemistry • Utility Operations

11/05/92

221303 Continued

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m/z	Min %	Max %	Mass Actual		Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0	---	---	100.0	PASS
96	5.0	9.0	95	8.2	PASS
173	---	2.0	174	0.2	PASS
174	50.0	---	95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS
177	5.0	9.0	176	7.3	PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-B04 Hot F. O.  
Collected By: JPJ  
Date & Time Taken: 09/16/92 1800  
Other Data: Tinker AFB  
Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221091 Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	nd	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Acrolein	ND	ug/l	1046 09/30/92	10000	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	1046 09/30/92	10000	EPA Method 8240	PM
Benzene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Bromoform	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Bromomethane	ND	ug/l	1046 09/30/92	1000	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Chloroethane	ND	ug/l	1046 09/30/92	1000	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	1046 09/30/92	1000	EPA Method 8240	PM
Chloroform	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Chloromethane	ND	ug/l	1046 09/30/92	1000	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM

Continued

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/l	1046 09/30/92	100	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Ethyl benzene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Tetrachloroethene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Toluene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Trichloroethene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	1046 09/30/92	1000	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	1046 09/30/92	1000	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	1046 09/30/92	500	EPA Method 8240	PM
Total Petroleum Hydrocarbons	2400	mg/l	1100 09/24/92	100	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	PLH

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President





2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-B05 Hot F. O.  
Collected By: JPJ  
Date & Time Taken: 09/16/92 1530  
Other Data: Tinker AFB  
Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221088 Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	nd	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Acrolein	ND	ug/l	1601 09/25/92	1000	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	1601 09/25/92	1000	EPA Method 8240	PM
Benzene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Bromoform	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Bromomethane	ND	ug/l	1601 09/25/92	100	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Chloroethane	ND	ug/l	1601 09/25/92	100	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	1601 09/25/92	100	EPA Method 8240	PM
Chloroform	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Chloromethane	ND	ug/l	1601 09/25/92	100	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM



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Analytical Chemistry • Utility Operations

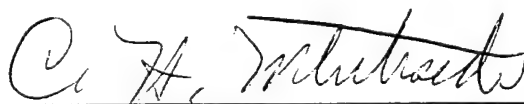
11/05/92

221088 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/l	1601 09/25/92	10	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Ethyl benzene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Tetrachloroethene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Toluene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Trichloroethene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	1601 09/25/92	100	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	1601 09/25/92	100	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	1601 09/25/92	50	EPA Method 8240	PM
Total Petroleum Hydrocarbons	140	mg/l	1100 09/24/92	10	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	PLH

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-B06  
Collected By: JPJ  
Date & Time Taken: 09/18/92 1300

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221306 Received: 09/21/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	nd	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Acrolein	ND	ug/l	0809 09/30/92	10000	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	0809 09/30/92	10000	EPA Method 8240	PM
Benzene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Bromoform	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Bromomethane	ND	ug/l	0809 09/30/92	1000	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Chloroethane	ND	ug/l	0809 09/30/92	1000	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	0809 09/30/92	1000	EPA Method 8240	PM
Chloroform	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Chloromethane	ND	ug/l	0809 09/30/92	1000	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM

Continued

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/l	0809 09/30/92	100	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Ethyl benzene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Tetrachloroethene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Toluene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Trichloroethene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	0809 09/30/92	1000	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	0809 09/30/92	1000	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	0809 09/30/92	500	EPA Method 8240	PM
Total Petroleum Hydrocarbons	5100	mg/l	1100 09/24/92	100	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	PLH

Quality Assurance for the SET with Sample 221306

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1100	09/24/92	TES
	Blank	ND	MG/L				1100	09/24/92	TES
	Standard	50	PPM	50		100	1100	09/24/92	TES
221518	Duplicate	240	MG/KG	230		104	1100	09/24/92	TES


**BROMOFLUOROBENZENE**

Ion Abundance Criteria

Continued

m/z	Min %	Max %	Mass Actual	Status
50	15.0	40.0	95 17.6	PASS
75	30.0	60.0	95 54.0	PASS
95	100.0	---	--- 100.0	PASS
96	5.0	9.0	95 8.2	PASS
173	---	2.0	174 0.2	PASS
174	50.0	---	95 90.1	PASS
175	5.0	9.0	174 7.5	PASS
176	95.0	101.0	174 95.0	PASS
177	5.0	9.0	176 7.3	PASS

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-B07  
Collected By: JPJ  
Date & Time Taken: 09/17/92 1500  
Other Data: Tinker AFB  
Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221090 Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	nd	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Acrolein	ND	ug/l	2241 09/30/92	200	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	2241 09/30/92	200	EPA Method 8240	PM
Benzene	14	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Bromoform	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Bromomethane	ND	ug/l	2241 09/30/92	20	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Chloroethane	ND	ug/l	2241 09/30/92	20	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	2241 09/30/92	20	EPA Method 8240	PM
Chloroform	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Chloromethane	ND	ug/l	2241 09/30/92	20	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM

Continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

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221090 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/l	2241 09/30/92	2.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Ethyl benzene	30	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Tetrachloroethene	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Toluene	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Trichloroethene	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	2241 09/30/92	20	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	2241 09/30/92	20	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	2241 09/30/92	10	EPA Method 8240	PM
Total Petroleum Hydrocarbons	1100	mg/l	1100 09/24/92	20	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	PLH

Quality Assurance for the SET with Sample 221090

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1100	09/24/92	TES
	Blank	ND	MG/L				1100	09/24/92	TES
	Standard	50	PPM	50		100	1100	09/24/92	TES
221518	Duplicate	240	MG/KG	230		104	1100	09/24/92	TES

BROMOFLUOROBENZENE

Ion Abundance Criteria

Continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

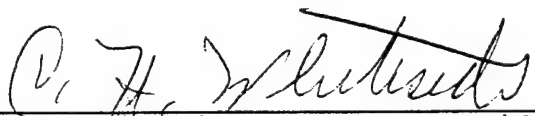
11/05/92

221090 Continued

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m/z	Min %	Max %	Mass Actual		Status
50	15.0	40.0	95	16.6	PASS
75	30.0	60.0	95	49.8	PASS
95	100.0	---	---	100.0	PASS
96	5.0	9.0	95	6.8	PASS
173	---	2.0	174	0.4	PASS
174	50.0	---	95	96.2	PASS
175	5.0	9.0	174	7.9	PASS
176	95.0	101.0	174	98.3	PASS
177	5.0	9.0	176	7.1	PASS

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President





2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

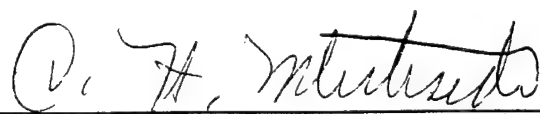
Sample Identification: NTA-B08 Hot F. O.  
Collected By: JPJ  
Date & Time Taken: 09/16/92 1750  
Other Data: Tinker AFB  
Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221089 Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	200	ug/l	1636 09/25/92	100	EPA Method 8240	PM
Acrolein	ND	ug/l	1636 09/25/92	10000	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	1636 09/25/92	10000	EPA Method 8240	PM
Benzene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Bromoform	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Bromomethane	ND	ug/l	1636 09/25/92	1000	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Chloroethane	ND	ug/l	1636 09/25/92	1000	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	1636 09/25/92	1000	EPA Method 8240	PM
Chloroform	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Chloromethane	ND	ug/l	1636 09/25/92	1000	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/l	1636 09/25/92	100	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Ethyl benzene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Tetrachloroethene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Toluene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Trichloroethene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	1636 09/25/92	1000	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	1636 09/25/92	1000	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	1636 09/25/92	500	EPA Method 8240	PM
Total Petroleum Hydrocarbons	690	mg/l	1100 09/24/92	10	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	PLH

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-B09  
Collected By: JPJ  
Date & Time Taken: 09/18/92 1220

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221307 Received: 09/21/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	nd	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Acrolein	ND	ug/l	1323 09/30/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	1323 09/30/92	100	EPA Method 8240	PM
Benzene	10	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/l	1323 09/30/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/l	1323 09/30/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	1323 09/30/92	10	EPA Method 8240	PM
Chloroform	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/l	1323 09/30/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM

Continued

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/l	1323 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Ethyl benzene	6.9	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	1323 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	1323 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	1323 09/30/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	50	mg/l	1100 09/24/92	10	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	PLH

Quality Assurance for the SET with Sample 221307

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1100	09/24/92	TES
	Blank	ND	MG/L				1100	09/24/92	TES
	Standard	50	PPM	50		100	1100	09/24/92	TES
221518	Duplicate	240	MG/KG	230		104	1100	09/24/92	TES

**BROMOFLUOROBENZENE**

Ion Abundance Criteria

Continued

m/z	Min %	Max %	Mass Actual	Status
50	15.0	40.0	95 17.6	PASS
75	30.0	60.0	95 54.0	PASS
95	100.0	---	--- 100.0	PASS
96	5.0	9.0	95 8.2	PASS
173	---	2.0	174 0.2	PASS
174	50.0	---	95 90.1	PASS
175	5.0	9.0	174 7.5	PASS
176	95.0	101.0	174 95.0	PASS
177	5.0	9.0	176 7.3	PASS

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-B10  
Collected By: JPJ  
Date & Time Taken: 09/18/92 1200

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221304 Received: 09/21/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	nd	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Acrolein	ND	ug/l	1217 09/30/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	1217 09/30/92	100	EPA Method 8240	PM
Benzene	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/l	1217 09/30/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/l	1217 09/30/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	1217 09/30/92	10	EPA Method 8240	PM
Chloroform	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/l	1217 09/30/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM



11/05/92

221304 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	11	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/l	1217 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Trichloroethene	34	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	1217 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	1217 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	1217 09/30/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	ND	mg/l	1100 09/24/92	10	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	PLH

### Quality Assurance for the SET with Sample 221304

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1100	09/24/92	TES
	Blank	ND	MG/L				1100	09/24/92	TES
	Standard	50	PPM	50		100	1100	09/24/92	TES
221518	Duplicate	240	MG/KG	230		104	1100	09/24/92	TES

### BROMOFLUOROBENZENE

Ion Abundance Criteria

Continued

m/z	Min %	Max %	Mass Actual		Status
50	15.0	40.0	95	16.6	PASS
75	30.0	60.0	95	49.8	PASS
95	100.0	---	---	100.0	PASS
96	5.0	9.0	95	6.8	PASS
173	---	2.0	174	0.4	PASS
174	50.0	---	95	96.2	PASS
175	5.0	9.0	174	7.9	PASS
176	95.0	101.0	174	98.3	PASS
177	5.0	9.0	176	7.1	PASS

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President





2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: NTA-B11  
Collected By: JPJ  
Date & Time Taken: 09/18/92 1230

Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221305 Received: 09/21/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	nd	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
Acrolein	ND	ug/l	1248 09/30/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	1248 09/30/92	100	EPA Method 8240	PM
Benzene	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/l	1248 09/30/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/l	1248 09/30/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	1248 09/30/92	10	EPA Method 8240	PM
Chloroform	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/l	1248 09/30/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	33	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/l	1248 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	6.4	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	1248 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	1248 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	1248 09/30/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	ND	mg/l	1100 09/24/92	10	EPA Method 418.1	TES
Hydrocarbon Liquid Extraction	Completed		1200 09/23/92		EPA Method 3510 *MOD	PLH

Quality Assurance for the SET with Sample 221305

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1100	09/24/92	TES
	Blank	ND	MG/L				1100	09/24/92	TES
	Standard	50	PPM	50		100	1100	09/24/92	TES
221518	Duplicate	240	MG/KG	230		104	1100	09/24/92	TES

**BROMOFLUOROBENZENE**

Ion Abundance Criteria

Continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

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11/05/92

221305 Continued

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m/z	Min %	Max %	Mass Actual		Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0	---	---	100.0	PASS
96	5.0	9.0	95	8.2	PASS
173	---	2.0	174	0.2	PASS
174	50.0	---	95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS
177	5.0	9.0	176	7.3	PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President

## **APPENDIX C**

### **ANALYTICAL RESULTS FROM SOIL SAMPLES FROM FUEL PURGE AREA**



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B01-SS1 @1'  
Collected By: JPJ  
Date & Time Taken: 09/23/92 1115  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221681 Received: 09/25/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	1946 09/30/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		1630 09/29/92		EPA Method 3550 *MOD	CRH
Phenols	5.0	mg/kg	1800 10/02/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2100 09/29/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	2135 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	15	mg/kg	2135 09/30/92	0.05	EPA Method 610	KB
Acrolein	ND	ug/kg	0420 10/28/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0420 10/28/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0420 10/28/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0420 10/28/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0420 10/28/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0420 10/28/92	10	EPA Method 8240	PM

Continued  
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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dibromochloromethane	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	0420 10/28/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Ethyl benzene	110	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Toluene	98	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0420 10/28/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0420 10/28/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0420 10/28/92	5.0	EPA Method 8240	PM
Xylenes	250	ug/kg	0420 10/28/92	10	EPA Method 8240	PM
Total Petroleum Hydrocarbons	5600	mg/kg	1000 09/30/92	100	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221681

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Hydrocarbon Sonication Extract.									



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221681 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	Completed					1630	09/29/92	CRH
221598	Duplicate	Completed		Completed		100	1630	09/29/92	CRH
<b>Phenols</b>									
	Blank	<.02	mg/l				1800	10/02/92	WMB
	Standard	.050	mg/l	.050		100	1800	10/02/92	WMB
221509	Duplicate	5	mg/kg	5		100	1800	10/02/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1000	09/30/92	TES
	Standard	50	PPM	50		100	1000	09/30/92	TES
221598	Duplicate	54	MG/KG	59		109	1000	09/30/92	TES

#### SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

#### BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount
Naphthalene	ND(.05) mg/l
2-Methylnaphthalene	ND(.05) mg/l

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-03-SS1 @5'  
Collected By: JPJ  
Date & Time Taken: 09/11/92  
Other Data: AFSCAPS Tinker AFB Job #5735  
Bottle Data: 1 -- Other (13)  
Lab Sample Number: 222883

Received: 10/09/92

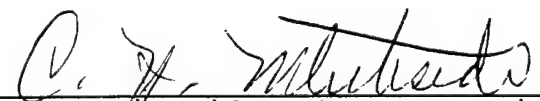
Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	780	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222883

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President





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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-03-SS2 @10'  
Collected By: Client  
Date & Time Taken: 09/11/92 1200

Bottle Data: 1 -- Other (13)

Lab Sample Number: 221301

Received: 09/21/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->ml	2223 09/25/92		EPA Method 3550	LM
Xylenes	nd	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/25/92		EPA Method 3550 *MOD	PLH
Phenols	ND	mg/kg	1700 09/30/92	.04	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1800 09/29/92		EPA Method 420.1	KC
Acenaphthene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Acrolein	ND	ug/kg	1727 09/30/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1727 09/30/92	100	EPA Method 8240	PM
Aldrin	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Anthracene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Benzene	10	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Benzidine	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM

Continued

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Benzo(k)fluoranthene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Bromoform	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1727 09/30/92	10	EPA Method 8240	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Carbon Tetrachloride	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1727 09/30/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1727 09/30/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	1727 09/30/92	10	EPA Method 8240	PM
2-Chloronaphthalene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Dibromochloromethane	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
1,3-Dichlorobenzene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	1141 09/30/92	670	EPA Method 8270	PM



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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Bromodichloromethane	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	1727 09/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Diethyl phthalate	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Ethyl benzene	120	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Fluoranthene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM

Continued



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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Methylene Chloride	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Naphthalene	1200	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
1,1,1-Trichloroethane	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1727 09/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1727 09/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1727 09/30/92	5.0	EPA Method 8240	PM
2-Methylnaphthalene	3400	ug/kg	1141 09/30/92	330	EPA Method 8270	PM
Total Petroleum Hydrocarbons	5300	mg/kg	1300 09/29/92	100	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221301

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Phenols									
	Blank	<.02	mg/l				1700	09/30/92	WMB
	Standard	.052	mg/l	.050		104	1700	09/30/92	WMB
221301	Duplicate	ND	mg/l	ND		100	1700	09/30/92	WMB

Continued



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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/L				1300	09/29/92	TES
	Standard	48	PPM	50		104	1300	09/29/92	TES
221401	Duplicate	1700	MG/KG	2000		116	1300	09/29/92	TES
221408	Duplicate	66000	MG/KG	59000		111	1300	09/29/92	TES
221509	Duplicate	6300	MG/KG	5700		110	1300	09/29/92	TES

**DECAFLUOROTRIPHENYLPHOSPHINE**

## Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
51	30.0	60.0	198	31.9	PASS
68	---	2.0	69	1.2	PASS
69	---	---	---	44.4	PASS
70	---	2.0	69	0.9	PASS
127	40.0	60.0	198	47.1	PASS
197	---	1.0	198	0.0	PASS
198	100.0	---	---	100.0	PASS
199	5.0	9.0	198	6.5	PASS
275	10.0	30.0	198	21.3	PASS
365	1.0	---	198	2.5	PASS
441	---	100.0	443	83.2	PASS
442	40.0	---	198	59.3	PASS
443	17.0	23.0	442	18.0	PASS

**BROMOFLUOROBENZENE**

## Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	17.6	PASS
75	30.0	60.0	95	54.0	PASS
95	100.0	---	---	100.0	PASS
96	5.0	9.0	95	8.2	PASS
173	---	2.0	174	0.2	PASS
174	50.0	---	95	90.1	PASS
175	5.0	9.0	174	7.5	PASS
176	95.0	101.0	174	95.0	PASS

Continued



THE COMPLETE SERVICE LAB

11/05/92

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177 5.0 9.0 176 7.3 PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-03-SS3 @15'

Collected By: JPJ

Date & Time Taken: 09/11/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222884

Received: 10/09/92

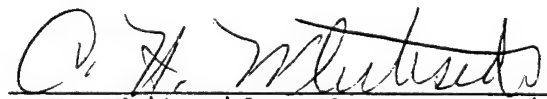
Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	28	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222884

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-04-SS1 @5'

Collected By: JPJ

Date & Time Taken: 09/22/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222877

Received: 10/09/92


Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	100	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222877

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President





2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-04-SS2 @10'  
Collected By: JPJ  
Date & Time Taken: 09/22/92  
Other Data: AFSCAPS Tinker AFB Job #5735  
Bottle Data: 1 -- Other (13)  
Lab Sample Number: 222878

Received: 10/09/92

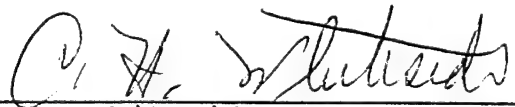
Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	130	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222878

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-04-SS3 @15'

Collected By: JPJ

Date & Time Taken: 09/22/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222879 Received: 10/09/92


Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	22	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222879

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-05-SS1 @5'

Collected By: JPJ

Date & Time Taken: 09/22/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222880 Received: 10/09/92


Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	22	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222880

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-05-SS2 @10'

Collected By: JPJ

Date & Time Taken: 09/22/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222881 Received: 10/09/92

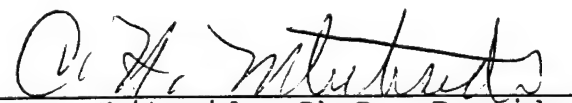
Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	29	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222881

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-05-SS3 @15'

Collected By: JPJ

Date & Time Taken: 09/22/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222882 Received: 10/09/92

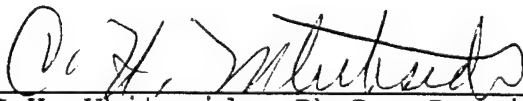
Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	12	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222882

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-G11A-SS1 Grab from .5'-1'

Collected By: Jack Jemsek

Date & Time Taken: 09/14/92 1700

Other Data: Tinker AFB

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 220911 Received: 09/16/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->ml	2200 09/17/92		EPA Method 3550	DDM
Hydrocarbon Sonication Extract.	Completed		1100 09/17/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1345 09/17/92	1	EPA Method 420.1	WMB
Phenol Distillation	Distilled		1045 09/17/92		EPA Method 420.1	WMB
Acenaphthene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Acrolein	ND	ug/kg	1432 09/17/92	500	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1432 09/17/92	500	EPA Method 8240	PM
Aldrin	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Anthracene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Benzene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Benzidine	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM



11/05/92

220911 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Bis(2-chloroethyl)ether	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Bromoform	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1432 09/17/92	50	EPA Method 8240	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Carbon Tetrachloride	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
4-Chloro-3-methylphenol	ND	ug/kg	2357 09/17/92	670	EPA Method 8270	PM
Chlorobenzene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1432 09/17/92	50	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1432 09/17/92	50	EPA Method 8240	PM
Chloroform	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Chloromethane	ND	ug/kg	1432 09/17/92	50	EPA Method 8240	PM
2-Chloronaphthalene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
2-Chlorophenol	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Dibromochloromethane	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
1,3-Dichlorobenzene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
3,3'-Dichlorobenzidine	ND	ug/kg	2357 09/17/92	670	EPA Method 8270	PM
Bromodichloromethane	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
2,4-Dichlorophenol	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Dichlorodiflouromethane	ND	ug/kg	1432 09/17/92	5.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Diethyl phthalate	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
2,4-Dimethylphenol	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
2-Methyl-4,6-dinitrophenol	ND	ug/kg	2357 09/17/92	1700	EPA Method 8270	PM
2,4-Dinitrophenol	ND	ug/kg	2357 09/17/92	1700	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Ethyl benzene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Fluoranthene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM





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Analytical Chemistry • Utility Operations

11/05/92

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hexachlorobutadiene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Methylene Chloride	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Naphthalene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
2-Nitrophenol	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
4-Nitrophenol	ND	ug/kg	2357 09/17/92	1700	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Pentachlorophenol	ND	ug/kg	2357 09/17/92	1700	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Phenol	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Toluene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
1,2,4-Trichlorobenzene	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
1,1,1-Trichloroethane	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM

Continued  
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Analytical Chemistry • Utility Operations

11/05/92

220911 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Trichlorofluoromethane	ND	ug/kg	1432 09/17/92	50	EPA Method 8240	PM
2,4,6-Trichlorophenol	ND	ug/kg	2357 09/17/92	330	EPA Method 8270	PM
Vinyl Chloride	ND	ug/kg	1432 09/17/92	50	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1432 09/17/92	25	EPA Method 8240	PM
Total Petroleum Hydrocarbons	4700	mg/kg	1200 09/17/92	100	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 220911

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Phenols									
	Blank	<.02	mg/l				1345	09/17/92	WMB
	Standard	.048	mg/l	.050		104	1345	09/17/92	WMB
220832	Duplicate	ND	mg/l	ND		100	1345	09/17/92	WMB
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				1200	09/17/92	TES
	Standard	52	PPM	50		104	1200	09/17/92	TES
220811	Duplicate	1000	MG/KG	1200		118	1200	09/17/92	TES

DECAFLUOROTRIPHENYLPHOSPHINE

Ion Abundance Criteria

m/z	Min %	Max %	Mass Actual	Status
51	30.0	60.0	198 39.1	PASS
68	---	2.0	69 1.4	PASS
69	---	---	--- 49.1	PASS
70	---	2.0	69 0.0	PASS
127	40.0	60.0	198 47.2	PASS
197	---	1.0	198 0.0	PASS
198	100.0	---	--- 100.0	PASS
199	5.0	9.0	198 7.0	PASS
275	10.0	30.0	198 18.0	PASS
365	1.0	---	198 1.9	PASS
441	---	100.0	443 76.9	PASS
442	40.0	---	198 49.0	PASS
443	17.0	23.0	442 19.1	PASS

BROMOFLUOROBENZENE

Continued

Ion Abundance Criteria

m/z	Min %	Max %	Mass Actual	Status
50	15.0	40.0	95 15.2	PASS
75	30.0	60.0	95 48.9	PASS
95	100.0	---	--- 100.0	PASS
96	5.0	9.0	95 7.7	PASS
173	---	2.0	174 0.1	PASS
174	50.0	---	95 63.8	PASS
175	5.0	9.0	174 6.8	PASS
176	95.0	101.0	174 97.0	PASS
177	5.0	9.0	176 7.2	PASS


Volatiles-In addition to the reported list the following compounds were tentatively identified in approximate concentrations:

Analyzed By PM On 09/17/92-1432

Compound Concentration (ppb)

Methylcyclohexane	1300
2-Methylheptane	1000
Trimethylhexane	1000
Dimethylcyclohexane	1500
Octane	1500
6-Methyl-2-Undecene	750
1,1,3-Trimethylheptane	4000
7-Methyl-1-undecene	3000
2,3,5-Trimethylheptane	1500
Trimethyldecane	8000
Dimethyl Benzene	1000
Dimethylheptadecane	2000
1-Tridecanol	2000
1-(Methylethyl) Cyclohexane	4000
4-Methyl Nonane	5000
3-Methyl Nonane	2000
1,4-Dimethylcyclooctane	4000
2-MethylNaphthalene	930

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-11-SS1 @1.5'

Collected By: JPJ

Date & Time Taken: 09/15/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222873

Received: 10/09/92


Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	22000	mg/kg	0900 10/13/92	500	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222873

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-11-SS2 @5'

Collected By: JPJ

Date & Time Taken: 09/15/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222885

Received: 10/09/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	490	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222885

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-11-SS3 @ 9' "Hot"  
Collected By: JPJ  
Date & Time Taken: 09/15/92 1247  
Other Data: Tinker AFB  
Bottle Data: 1 -- Other (13)  
Lab Sample Number: 221077

Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	5->1	g->ml	1250 09/25/92		EPA Method 3550	DDM
Xylenes	nd	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/21/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1345 09/24/92	1	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2000 09/22/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1005 09/30/92	.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1005 09/30/92	.05	EPA Method 610	KB
Acrolein	ND	ug/kg	1816 09/29/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1816 09/29/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1816 09/29/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1816 09/29/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1816 09/29/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM



11/05/92

221077 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1816 09/29/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	1816 09/29/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Ethyl benzene	32	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1816 09/29/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1816 09/29/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1816 09/29/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	4200	mg/kg	1300 09/21/92	100	EPA Method 418.1	TES

## Quality Assurance for the SET with Sample 221077

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Phenols									

Continued

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Analytical Chemistry • Utility Operations

11/05/92

221077 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<.02	mg/l				1345	09/24/92	WMB
	Standard	.050	mg/l	.050		100	1345	09/24/92	WMB
221457	Duplicate	ND	mg/l	ND		100	1345	09/24/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1300	09/21/92	TES
	Standard	50	PPM	50		100	1300	09/21/92	TES
221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

#### SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

#### BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount
Naphthalene	ND(.05) mg/l
2-Methylnaphthalene	ND(.05) mg/l

#### BROMOFLUOROBENZENE

##### Ion Abundance Criteria

m/z	Min %	Max %	Mass Actual	Status
50	15.0	40.0	95 17.6	PASS
75	30.0	60.0	95 54.0	PASS
95	100.0	---	--- 100.0	PASS
96	5.0	9.0	95 8.2	PASS
173	---	2.0	174 0.2	PASS
174	50.0	---	95 90.1	PASS
175	5.0	9.0	174 7.5	PASS
176	95.0	101.0	174 95.0	PASS

Continued





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*Analytical Chemistry • Utility Operations*

221077 Continued

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177 5.0 9.0 176 7.3 PASS

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-11-SS4 @15'  
Collected By: JPJ  
Date & Time Taken: 09/15/92  
Other Data: AFSCAPS Tinker AFB Job #5735  
Bottle Data: 1 -- Other (13)  
Lab Sample Number: 222886

Received: 10/09/92


Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	33	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222886

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-12-SS1 @5'

Collected By: JPJ

Date & Time Taken: 09/15/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222887 Received: 10/09/92


Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	220	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222887

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-12-SS2 @ 10'

Collected By: JPJ

Date & Time Taken: 09/15/92 1015

Other Data: Tinker AFB

Bottle Data: 1 -- Other (13)

Lab Sample Number: 221079

Received: 09/18/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	1718 09/25/92		EPA Method 3550	DDM
Xylenes	nd	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/21/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1430 09/28/92	1	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1700 09/23/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1640 09/30/92	.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1640 09/30/92	.05	EPA Method 610	KB
Acrolein	ND	ug/kg	1333 09/29/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1333 09/29/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1333 09/29/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1333 09/29/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1333 09/29/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1333 09/29/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	1333 09/29/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Ethyl benzene	13	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1333 09/29/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1333 09/29/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1333 09/29/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	790	mg/kg	1300 09/21/92	10	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221079

.....  
Sample #      Description      Result      Units      Dup/Std Value      Spk Conc.      Percent      Time      Date      By

Phenols



11/05/92

221079 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<.02	mg/l				1430	09/28/92	WMB
	Standard	.051	mg/l	.050		102	1430	09/28/92	WMB
221671	Duplicate	.06	mg/l	.06		100	1430	09/28/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1300	09/21/92	TES
	Standard	50	PPM	50		100	1300	09/21/92	TES
221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

**SHIFT 1 STANDARD**

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

**BATCH 1 BLANK**

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount
Naphthalene	ND(.05) mg/l
2-Methylnaphthalene	ND(.05) mg/l

**BROMOFLUOROBENZENE**

## Ion Abundance Criteria

m/z	Min %	Max %	Mass Actual	Status
50	15.0	40.0	95 17.6	PASS
75	30.0	60.0	95 54.0	PASS
95	100.0	---	--- 100.0	PASS
96	5.0	9.0	95 8.2	PASS
173	---	2.0	174 0.2	PASS
174	50.0	---	95 90.1	PASS
175	5.0	9.0	174 7.5	PASS
176	95.0	101.0	174 95.0	PASS

Continued

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177	5.0	9.0	176	7.3	PASS
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I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-12-SS3 @15'  
Collected By: JPJ  
Date & Time Taken: 09/15/92  
Other Data: AFSCAPS Tinker AFB Job #5735  
Bottle Data: 1 -- Other (13)  
Lab Sample Number: 222888

Received: 10/09/92


Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	76	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222888

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President





2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-13-SS1 @5'

Collected By: JPJ

Date & Time Taken: 09/15/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222889

Received: 10/09/92


Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	24	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222889

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-13-SS2 @10

Collected By: JPJ

Date & Time Taken: 09/15/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222890

Received: 10/09/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	76	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222890

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

**Sample Identification:** FPA-13-SS3 @ 15'

**Collected By:** JPJ

**Date & Time Taken:** 09/15/92 1445

**Other Data:** Tinker AFB

**Bottle Data:** 1 -- Other (13)

**Lab Sample Number:** 221078

**Received:** 09/18/92

**Client:** ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	1713 09/25/92		EPA Method 3550	DDM
Xylenes	nd	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Hydrocarbon Sonication Extract.	Completed		1100 09/21/92		EPA Method 3550 *MOD	TES
Phenols	ND	mg/kg	1345 09/24/92	1	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2000 09/22/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1624 09/30/92	.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1624 09/30/92	.05	EPA Method 610	KB
Acrolein	ND	ug/kg	1253 09/29/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1253 09/29/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1253 09/29/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1253 09/29/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1253 09/29/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Chloromethane	ND	ug/kg	1253 09/29/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	1253 09/29/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Trichloroethene	19	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1253 09/29/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1253 09/29/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1253 09/29/92	5.0	EPA Method 8240	PM
Total Petroleum Hydrocarbons	22	mg/kg	1300 09/21/92	10	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221078

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
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Phenols

Continued



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Analytical Chemistry • Utility Operations

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<.02	mg/l				1345	09/24/92	WMB
	Standard	.050	mg/l	.050		100	1345	09/24/92	WMB
221457	Duplicate	ND	mg/l	ND		100	1345	09/24/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1300	09/21/92	TES
	Standard	50	PPM	50		100	1300	09/21/92	TES
221086	Duplicate	32000	MG/KG	37000		114	1300	09/21/92	TES
221118	Duplicate	27	MG/KG	30		111	1300	09/21/92	TES

#### SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

#### BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount
Naphthalene	ND(.05) mg/l
2-Methylnaphthalene	ND(.05) mg/l

#### BROMOFLUOROBENZENE

##### Ion Abundance Criteria

m/z	Min %	Max %	Mass Actual	Status
50	15.0	40.0	95 17.6	PASS
75	30.0	60.0	95 54.0	PASS
95	100.0	---	--- 100.0	PASS
96	5.0	9.0	95 8.2	PASS
173	---	2.0	174 0.2	PASS
174	50.0	---	95 90.1	PASS
175	5.0	9.0	174 7.5	PASS
176	95.0	101.0	174 95.0	PASS

Continued



THE COMPLETE SERVICE LAB

11/05/92

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221078 Continued

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177 5.0 9.0 176 7.3 PASS

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-20-SS1 @5'

Collected By: JPJ

Date & Time Taken: 09/26/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222891

Received: 10/09/92


Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	740	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222891

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-20-SS2 @10'

Collected By: JPJ

Date & Time Taken: 09/26/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222892 Received: 10/09/92

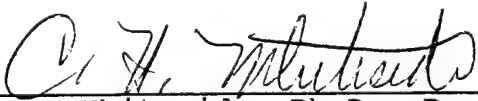
Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	190	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222892

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President





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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-20-SS3 @15'  
Collected By: JPJ  
Date & Time Taken: 09/26/92  
Other Data: AFSCAPS Tinker AFB Job #5735  
Bottle Data: 1 -- Other (13)  
Lab Sample Number: 222893

Received: 10/09/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	25	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222893

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B31-SS1 2.5'-3.5'  
Collected By: JPJ  
Date & Time Taken: 09/23/92 1220  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221682 Received: 09/25/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->ml	1853 09/29/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		1630 09/29/92		EPA Method 3550 *MOD	CRH
Phenols	ND	mg/kg	1800 10/02/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2100 09/29/92		EPA Method 420.1	KC
Acenaphthene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Acrolein	ND	ug/kg	0132 10/31/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0132 10/31/92	100	EPA Method 8240	PM
Aldrin	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	GO
Anthracene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Benzene	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Benzidine	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Bis(2-chloroethyl)ether	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Bromoform	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0132 10/31/92	10	EPA Method 8240	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Carbon Tetrachloride	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0132 10/31/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0132 10/31/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0132 10/31/92	10	EPA Method 8240	PM
2-Chloronaphthalene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Chrysene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Dibromochloromethane	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
1,3-Dichlorobenzene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	1236 11/03/92	6700	EPA Method 8270	PM
Bromodichloromethane	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM



11/05/92

221682 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
1,1-Dichloroethane	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	0132 10/31/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Diethyl phthalate	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Ethyl benzene	1000	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Fluoranthene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Fluorene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Isophorone	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Methylene Chloride	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM

Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Naphthalene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Pyrene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
1,1,2,2-Tetrachloroethane	1000	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
1,1,1-Trichloroethane	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0132 10/31/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0132 10/31/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0132 10/31/92	5.0	EPA Method 8240	PM
2-Methylnaphthalene	39000	ug/kg	1236 11/03/92	3300	EPA Method 8270	PM
Xylenes	2000	ug/kg	0132 10/31/92	10	EPA Method 8240	PM
Total Petroleum Hydrocarbons	20000	mg/kg	1000 09/30/92	500	EPA Method 418.1	TES


Quality Assurance for the SET with Sample 221682

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Hydrocarbon Sonication Extract.</b>									
	Blank	Completed					1630	09/29/92	CRH
221598	Duplicate	Completed		Completed		100	1630	09/29/92	CRH

Continued

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Phenols</b>									
	Blank	<.02	mg/l				1800	10/02/92	WMB
	Standard	.050	mg/l	.050		100	1800	10/02/92	WMB
221509	Duplicate	5	mg/kg	5		100	1800	10/02/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1000	09/30/92	TES
	Standard	50	PPM	50		100	1000	09/30/92	TES
221598	Duplicate	54	MG/KG	59		109	1000	09/30/92	TES

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B31-SS2 6'  
Collected By: JPJ  
Date & Time Taken: 09/23/92 1250  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221683 Received: 09/25/92


Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1630 09/29/92		EPA Method 3550 *MOD	CRH
Total Petroleum Hydrocarbons	230	mg/kg	1000 09/30/92	10	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221683

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Hydrocarbon Sonication Extract.									
221598	Blank	Completed					1630	09/29/92	CRH
	Duplicate	Completed		Completed		100	1630	09/29/92	CRH
Total Petroleum Hydrocarbons									
221598	Blank	ND	MG/KG				1000	09/30/92	TES
	Standard	50	PPM	50		100	1000	09/30/92	TES
	Duplicate	54	MG/KG	59		109	1000	09/30/92	TES

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B31-SS3 8'-9'  
Collected By: JPJ  
Date & Time Taken: 09/23/92 1220  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221684 Received: 09/25/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->ml	1847 09/29/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		1630 09/29/92		EPA Method 3550 *MOD	CRH
Phenols	ND	mg/kg	1800 10/02/92	5	EPA Method 420.1	WMB
Phenol Distillation	Distilled		1400 10/02/92		EPA Method 420.1	WMB
Acenaphthene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Acrolein	ND	ug/kg	0239 10/31/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0239 10/31/92	100	EPA Method 8240	PM
Aldrin	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	GO
Anthracene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Benzene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Benzidine	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM



PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Bis(2-chloroethyl)ether	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Bromoform	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Carbon Tetrachloride	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
2-Chloronaphthalene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Dibromochloromethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
1,3-Dichlorobenzene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	2155 11/03/92	670	EPA Method 8270	PM
Bromodichloromethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
1,1-Dichloroethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	0239 10/31/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Diethyl phthalate	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Ethyl benzene	300	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Fluoranthene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Methylene Chloride	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM

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Analytical Chemistry • Utility Operations

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Naphthalene	2600	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
1,1,2,2-Tetrachloroethane	700	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
1,2,4-Trichlorobenzene	ND	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
1,1,1-Trichloroethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
2-Methylnaphthalene	10000	ug/kg	2155 11/03/92	330	EPA Method 8270	PM
Xylenes	1200	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
Total Petroleum Hydrocarbons	5100	mg/kg	1000 09/30/92	100	EPA Method 418.1	TES


Quality Assurance for the SET with Sample 221684

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Hydrocarbon Sonication Extract.</b>									
	Blank	Completed					1630	09/29/92	CRH
221598	Duplicate	Completed		Completed		100	1630	09/29/92	CRH

Continued

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Phenols</b>									
221509	Blank	<.02	mg/l				1800	10/02/92	WMB
	Standard	.050	mg/l	.050		100	1800	10/02/92	WMB
	Duplicate	5	mg/kg	5		100	1800	10/02/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
221598	Blank	ND	MG/KG				1000	09/30/92	TES
	Standard	50	PPM	50		100	1000	09/30/92	TES
	Duplicate	54	MG/KG	59		109	1000	09/30/92	TES

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

**Sample Identification:** FPA-B31-SS4 @11'  
**Collected By:** JPJ  
**Date & Time Taken:** 09/23/92 1300  
**Other Data:** AFSCAPS Job #5735, Tinker AFB  
**Bottle Data:** 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
**Lab Sample Number:** 221687 **Received:** 09/25/92


**Client:** ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1630 09/29/92		EPA Method 3550 *MOD	CRH
Total Petroleum Hydrocarbons	110	mg/kg	1000 09/30/92	10	EPA Method 418.1	TES

**Quality Assurance for the SET with Sample 221687**

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Hydrocarbon Sonication Extract.</b>									
	Blank	Completed					1630	09/29/92	CRH
221598	Duplicate	Completed		Completed		100	1630	09/29/92	CRH
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1000	09/30/92	TES
	Standard	50	PPM	50		100	1000	09/30/92	TES
221598	Duplicate	54	MG/KG	59		109	1000	09/30/92	TES

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B31-SS4A @13'  
Collected By: JPJ  
Date & Time Taken: 09/23/92 1344  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

Lab Sample Number: 221690 Received: 09/25/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	1835 09/30/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		1630 09/29/92		EPA Method 3550 *MOD	CRH
Phenols	ND	mg/kg	1500 10/05/92	1	EPA Method 420.1	WMB
Phenol Distillation	Distilled		1400 10/02/92		EPA Method 420.1	WMB
Naphthalene	ND	mg/kg	1955 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1955 09/30/92	0.05	EPA Method 610	KB
Acrolein	ND	ug/kg	0456 10/28/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0456 10/28/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0456 10/28/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0456 10/28/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0456 10/28/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0456 10/28/92	10	EPA Method 8240	PM

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Analytical Chemistry • Utility Operations

11/05/92

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dibromochloromethane	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	0456 10/28/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0456 10/28/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0456 10/28/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0456 10/28/92	5.0	EPA Method 8240	PM
Xylenes	ND	ug/kg	0456 10/28/92	10	EPA Method 8240	PM
Total Petroleum Hydrocarbons	180	mg/kg	1000 09/30/92	10	EPA Method 418.1	TES

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President 146



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B31-SS5 @16'  
Collected By: JPJ  
Date & Time Taken: 09/23/92 1240  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221696 Received: 09/25/92

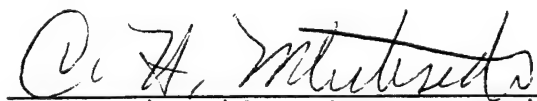
Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1630 09/29/92		EPA Method 3550 *MOD	CRH
Total Petroleum Hydrocarbons	35	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO

Quality Assurance for the SET with Sample 221696

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Hydrocarbon Sonication Extract.									
221598	Blank	Completed					1630	09/29/92	CRH
	Duplicate	Completed		Completed		100	1630	09/29/92	CRH
Total Petroleum Hydrocarbons									
221713	Blank	ND	MG/L				1200	09/30/92	TSO
	Blank	ND	MG/KG				1200	09/30/92	TSO
	Standard	152	PPM	150		101	1200	09/30/92	TSO
	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSO
	Duplicate	12	MG/KG	ND		300	1200	09/30/92	TSO
	Duplicate	12	MG/KG	12		100	1200	09/30/92	TSO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President





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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B31-SS6 @19'  
Collected By: JPJ  
Date & Time Taken: 09/23/92 1320  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221702 Received: 09/25/92


Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1630 09/29/92		EPA Method 3550 *MOD	CRH
Total Petroleum Hydrocarbons	35	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO

Quality Assurance for the SET with Sample 221702

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Hydrocarbon Sonication Extract.									
	Blank	Completed					1630	09/29/92	CRH
221598	Duplicate	Completed		Completed		100	1630	09/29/92	CRH
Total Petroleum Hydrocarbons									
	Blank	ND	MG/L				1200	09/30/92	TSO
	Blank	ND	MG/KG				1200	09/30/92	TSO
	Standard	152	PPM	150		101	1200	09/30/92	TSO
221713	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSO
221853	Duplicate	12	MG/KG	ND		300	1200	09/30/92	TSO
221872	Duplicate	12	MG/KG	12		100	1200	09/30/92	TSO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B32-SS1 @1'  
Collected By: JPJ  
Date & Time Taken: 09/22/92 1530  
Other Data: Tinker AFB, Job # 5735  
Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221512 Received: 09/23/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 09/28/92		EPA Method 3550 *MOD	BTW
Total Petroleum Hydrocarbons	1900	mg/kg	1300 09/29/92	50	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221512

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/L				1300	09/29/92	TES
	Standard	48	PPM	50		104	1300	09/29/92	TES
221401	Duplicate	1700	MG/KG	2000		116	1300	09/29/92	TES
221408	Duplicate	66000	MG/KG	59000		111	1300	09/29/92	TES
221509	Duplicate	6300	MG/KG	5700		110	1300	09/29/92	TES

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B32-SS2 @6"  
Collected By: JPJ  
Date & Time Taken: 09/22/92 1550  
Other Data: Tinker AFB, Job # 5735  
Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)


Lab Sample Number: 221513 Received: 09/23/92 Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 09/28/92		EPA Method 3550 *MOD	BTW
Total Petroleum Hydrocarbons	2300	mg/kg	1300 09/29/92	50	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221513

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/L				1300	09/29/92	TES
	Standard	48	PPM	50		104	1300	09/29/92	TES
221401	Duplicate	1700	MG/KG	2000		116	1300	09/29/92	TES
221408	Duplicate	66000	MG/KG	59000		111	1300	09/29/92	TES
221509	Duplicate	6300	MG/KG	5700		110	1300	09/29/92	TES

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B32-SS3 @10'  
Collected By: JPJ  
Date & Time Taken: 09/22/92 1600  
Other Data: Tinker AFB, Job # 5735  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 221511 Received: 09/23/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->4	g->ml	1944 09/30/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		1700 09/28/92		EPA Method 3550 *MOD	BTW
Phenols	6.0	mg/kg	1800 10/02/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2100 09/29/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	2120 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	2120 09/30/92	0.05	EPA Method 610	KB
Acrolein	ND	ug/kg	0832 10/30/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0832 10/30/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0832 10/30/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0832 10/30/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0832 10/30/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0832 10/30/92	10	EPA Method 8240	PM

Continued  
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Analytical Chemistry • Utility Operations

11/05/92

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dibromochloromethane	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	0832 10/30/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0832 10/30/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0832 10/30/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0832 10/30/92	5.0	EPA Method 8240	PM
Xylenes	ND	ug/kg	0832 10/30/92	10	EPA Method 8240	PM
Total Petroleum Hydrocarbons	55	mg/kg	1300 09/29/92	10	EPA Method 418.1	TES

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President 152



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B32-SS4 @14'  
Collected By: JPJ  
Date & Time Taken: 09/22/92 1620  
Other Data: Tinker AFB, Job # 5735  
Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221514 Received: 09/23/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 09/28/92		EPA Method 3550 *MOD	CRH
Total Petroleum Hydrocarbons	38	mg/kg	1300 09/29/92	10	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221514

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/L				1300	09/29/92	TES
	Standard	48	PPM	50		104	1300	09/29/92	TES
221401	Duplicate	1700	MG/KG	2000		116	1300	09/29/92	TES
221408	Duplicate	66000	MG/KG	59000		111	1300	09/29/92	TES
221509	Duplicate	6300	MG/KG	5700		110	1300	09/29/92	TES

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B32-SS5 17'-22'  
Collected By: JPJ  
Date & Time Taken: 09/22/92 1600  
Other Data: Tinker AFB, Job # 5735  
Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221515 Received: 09/23/92


Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		2300 09/28/92		EPA Method 3550 *MOD	SB
Total Petroleum Hydrocarbons	17	mg/kg	1300 09/29/92	10	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221515

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/L				1300	09/29/92	TES
	Standard	48	PPM	50		104	1300	09/29/92	TES
221401	Duplicate	1700	MG/KG	2000		116	1300	09/29/92	TES
221408	Duplicate	66000	MG/KG	59000		111	1300	09/29/92	TES
221509	Duplicate	6300	MG/KG	5700		110	1300	09/29/92	TES

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B32-SS6 22'-27'  
Collected By: JPJ  
Date & Time Taken: 09/22/92 1630  
Other Data: Tinker AFB, Job # 5735  
Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221516 Received: 09/23/92


Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		2300 09/28/92		EPA Method 3550 *MOD	SB
Total Petroleum Hydrocarbons	17	mg/kg	1300 09/29/92	10	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221516

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/L				1300	09/29/92	TES
	Standard	48	PPM	50		104	1300	09/29/92	TES
221401	Duplicate	1700	MG/KG	2000		116	1300	09/29/92	TES
221408	Duplicate	66000	MG/KG	59000		111	1300	09/29/92	TES
221509	Duplicate	6300	MG/KG	5700		110	1300	09/29/92	TES

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President





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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B32-SS7 @30'  
Collected By: JPJ  
Date & Time Taken: 09/22/92 1720  
Other Data: Tinker AFB, Job # 5735  
Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221517 Received: 09/23/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		2300 09/28/92		EPA Method 3550 *MOD	SB
Total Petroleum Hydrocarbons	12	mg/kg	1300 09/29/92	10	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221517

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/L				1300	09/29/92	TES
	Standard	48	PPM	50		104	1300	09/29/92	TES
221401	Duplicate	1700	MG/KG	2000		116	1300	09/29/92	TES
221408	Duplicate	66000	MG/KG	59000		111	1300	09/29/92	TES
221509	Duplicate	6300	MG/KG	5700		110	1300	09/29/92	TES

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B33-SS1 @1'  
Collected By: JPJ  
Date & Time Taken: 09/23/92 1600  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221705 Received: 09/25/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1630 09/29/92		EPA Method 3550 *MOD	CRH
Total Petroleum Hydrocarbons	500	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO

Quality Assurance for the SET with Sample 221705

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Hydrocarbon Sonication Extract.									
221598	Blank	Completed					1630	09/29/92	CRH
	Duplicate	Completed		Completed		100	1630	09/29/92	CRH
Total Petroleum Hydrocarbons									
221713	Blank	ND	MG/L				1200	09/30/92	TSO
	Blank	ND	MG/KG				1200	09/30/92	TSO
	Standard	152	PPM	150		101	1200	09/30/92	TSO
	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSO
	Duplicate	12	MG/KG	ND		300	1200	09/30/92	TSO
	Duplicate	12	MG/KG	12		100	1200	09/30/92	TSO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

**Sample Identification:** FPA-B33-SS2 @3.5'  
**Collected By:** JPJ  
**Date & Time Taken:** 09/23/92 1610  
**Other Data:** AFSCAPS Job #5735, Tinker AFB  
**Bottle Data:** 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
**Lab Sample Number:** 221706 **Received:** 09/25/92


**Client:** ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1630 09/29/92		EPA Method 3550 *MOD	CRH
Total Petroleum Hydrocarbons	410	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO

**Quality Assurance for the SET with Sample 221706**

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Hydrocarbon Sonication Extract.</b>									
	Blank	Completed					1630	09/29/92	CRH
221598	Duplicate	Completed		Completed		100	1630	09/29/92	CRH
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/L				1200	09/30/92	TSO
	Blank	ND	MG/KG				1200	09/30/92	TSO
	Standard	152	PPM	150		101	1200	09/30/92	TSO
221713	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSO
221853	Duplicate	12	MG/KG	ND		300	1200	09/30/92	TSO
221872	Duplicate	12	MG/KG	12		100	1200	09/30/92	TSO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

**Sample Identification:** FPA-B33-SS3 7'-8'  
**Collected By:** JPJ  
**Date & Time Taken:** 09/23/92 1620  
**Other Data:** AFSCAPS Job #5735, Tinker AFB  
**Bottle Data:** 1 -- Unpreserved Plastic/Glass (00)  
**Lab Sample Number:** 221708 **Received:** 09/25/92

**Client:** ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->ml	1850 09/29/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		1630 09/29/92		EPA Method 3550 *MOD	CRH
Phenols	ND	mg/kg	1500 10/05/92	1	EPA Method 420.1	WMB
Phenol Distillation	Distilled		1400 10/02/92		EPA Method 420.1	WMB
Acenaphthene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Aldrin	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	GO
Anthracene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Benzidine	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM

Continued

221708 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
4-Bromophenyl phenyl ether	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
2-Chloronaphthalene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
1,3-Dichlorobenzene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	2226 10/30/92	670	EPA Method 8270	PM
Diethyl phthalate	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Fluoranthene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM



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Analytical Chemistry • Utility Operations

11/05/92

221708 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Indeno(1,2,3-cd)pyrene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Naphthalene	600	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
2-Methylnaphthalene	1500	ug/kg	2226 10/30/92	330	EPA Method 8270	PM
Total Petroleum Hydrocarbons	1500	mg/kg	1200 09/30/92	50	EPA Method 418.1	TSO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/03/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

**Sample Identification:** FPA-B33-SS4

**Collected By:** JPJ

**Date & Time Taken:** 09/23/92 1620

**Other Data:** AFSCAPS Job #5735, Tinker AFB 9-10'

**Bottle Data:** 1 -- Unpreserved Plastic/Glass (00)

**Lab Sample Number:** 221713 **Received:** 09/25/92

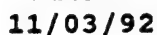
**Client:** ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
TCLP Liquid-Liquid Extraction	1000->1	ml->ml	1723 10/07/92		EPA Method 3510	GE
TCLP Liq-Liq Extr. W/Hex Exch.	1000->1	ml->ml	2126 10/12/92		EPA Method 3510	LM
TCLP ZHE Volatile Extraction	100.0% Sol	Completed.	1430 10/01/92		EPA Method 1311	LM
TCLP Extraction	SOLID EXT #1		1620 10/02/92		EPA Method 1311	RJH
Esterification of Sample Extract	Completed.		1300 10/13/92		EPA Method 8150	KB
Hydrocarbon Sonication Extract.	Completed		1630 09/29/92		EPA Method 3550 *MOD	CRH
TCLP Benzene (Reg. Limit 0.5)	ND	mg/l	0609 10/28/92	0.005	EPA Method 8240-TCLP	PM
TCLP Gamma-BHC (Lindane) (.4)	ND	mg/l	1030 10/13/92	0.00004	EPA Method 8080-TCLP	KB
TCLP Carbon Tetrachloride (.5)	ND	mg/l	0609 10/28/92	0.005	EPA Method 8240-TCLP	PM
TCLP Chlordane (Reg. Limit 0.03)	ND	mg/l	1030 10/13/92	0.00014	EPA Method 8080-TCLP	KB
TCLP Chlorobenzene (Limit 100)	ND	mg/l	0609 10/28/92	0.005	EPA Method 8240-TCLP	PM
TCLP Chloroform (Reg. Limit 6.0)	ND	mg/l	0609 10/28/92	0.005	EPA Method 8240-TCLP	PM
TCLP 1,4 Dichlorobenzene: RL 7.5	ND	mg/l	1223 11/02/92	0.01	EPA Method 8270-TCLP	GO
TCLP 1,2-Dichloroethane (RL .5)	ND	mg/l	0609 10/28/92	0.005	EPA Method 8240-TCLP	PM
TCLP 1,1-Dichloroethene (.7)	ND	mg/l	0609 10/28/92	0.005	EPA Method 8240-TCLP	PM
TCLP 2,4-Dinitrotoluene (.13)	ND	mg/l	1223 11/02/92	0.01	EPA Method 8270-TCLP	GO
TCLP Endrin (Reg. Limit 0.02)	ND	mg/l	1030 10/13/92	0.00006	EPA Method 8080-TCLP	KB

Continued

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
TCLP Heptachlor (Limit .008)	ND	mg/l	1030 10/13/92	0.00003	EPA Method 8080-TCLP	KB
TCLP Heptachlor Epoxide (.008)	ND	mg/l	1030 10/13/92	0.00083	EPA Method 8080-TCLP	KB
TCLP Hexachlorobenzene (.13)	ND	mg/l	1223 11/02/92	0.05	EPA Method 8270-TCLP	GO
TCLP Hexachlorobutadiene (.5)	ND	mg/l	1223 11/02/92	0.01	EPA Method 8270-TCLP	GO
TCLP Hexachlorethane (Limit 3)	ND	mg/l	1223 11/02/92	0.01	EPA Method 8270-TCLP	GO
TCLP Nitrobenzene (Limit 2)	ND	mg/l	1223 11/02/92	0.01	EPA Method 8270-TCLP	GO
TCLP Pentachlorophenol (100)	ND	mg/l	1223 11/02/92	0.01	EPA Method 8270-TCLP	GO
TCLP Tetrachloroethylene (.7)	ND	mg/l	0609 10/28/92	0.005	EPA Method 8240-TCLP	PM
TCLP Toxaphene (Reg. Limit 0.5)	ND	mg/l	1030 10/13/92	0.0024	EPA Method 8080-TCLP	KB
TCLP Trichloroethylene (.5)	ND	mg/l	0609 10/28/92	0.005	EPA Method 8240-TCLP	PM
TCLP 2,4,6-Trichlorophenol (2)	ND	mg/l	1223 11/02/92	0.01	EPA Method 8270-TCLP	GO
TCLP Vinyl Chloride (.2)	ND	mg/l	0609 10/28/92	0.01	EPA Method 8240-TCLP	PM
TCLP 2,4 D (Reg. Limit 10)	ND	mg/l	1620 10/13/92	0.012	EPA Method 8150-TCLP	KB
TCLP 2,4,5-Trichlorophenol (400)	ND	mg/l	1223 11/02/92	0.01	EPA Method 8270-TCLP	GO
TCLP 2,4,5-TP (Silvex) (RL 1)	ND	mg/l	1620 10/13/92	0.0017	EPA Method 8150-TCLP	KB
TCLP Cresol (Reg. Limit 1)	ND	mg/l	1223 11/02/92	0.01	EPA Method 8270-TCLP	GO
TCLP MEK (Reg. Limit 200)	ND	mg/l	0609 10/28/92	0.05	EPA Method 8240-TCLP	PM
TCLP Methoxychlor (RL 10)	ND	mg/l	1030 10/13/92	0.0018	EPA Method 8080-TCLP	KB
TCLP Pyridine (Reg. Limit 5)	ND	mg/l	1223 11/02/92	0.01	EPA Method 8270-TCLP	GO
Total Petroleum Hydrocarbons	850	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO
Metals Digestion TCLP 3010	Digested	a/s	1600 10/06/92		EPA Method 3010	BWP
Metals Digestion - TCLP 7470	Digested	A/S	1000 10/06/92		EPA Method 7470	DKR
TCLP Silver (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.01	EPA Method 6010	GDG
TCLP Arsenic (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.2	EPA Method 6010	GDG





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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
TCLP Barium (Reg. Limit 100.0)	3.9	mg/l	1333 10/10/92	1.0	EPA Method 6010	GDG
TCLP Cadmium (Reg. Limit 1.0)	ND	mg/l	1333 10/10/92	.01	EPA Method 6010	GDG
TCLP Chromium (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.02	EPA Method 6010	GDG
TCLP Mercury (Reg. Limit 0.2)	ND	mg/l	1200 10/18/92	.001	EPA Method 7470	LW
TCLP Lead (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.1	EPA Method 6010	GDG
TCLP Selenium (Reg. Limit 1.0)	ND	mg/l	1333 10/10/92	.2	EPA Method 6010	GDG

### Quality Assurance for the SET with Sample 221713

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
HP Volatile									

### Hydrocarbon Sonication Extract.

	Blank	Completed			1630	09/29/92	CRH
221598	Duplicate	Completed	Completed	100	1630	09/29/92	CRH
	<b>Total Petroleum Hydrocarbons</b>						
	Blank	ND	MG/L		1200	09/30/92	TSO
	Blank	ND	MG/KG		1200	09/30/92	TSO
	Standard	152	PPM	150	1200	09/30/92	TSO
221713	Duplicate	760	MG/KG	930	1200	09/30/92	TSO
221853	Duplicate	12	MG/KG	ND	300	09/30/92	TSO
221872	Duplicate	12	MG/KG	12	100	09/30/92	TSO
	<b>TCLP Silver (Reg. Limit 5.0)</b>						
	Blank	<.01	mg/l		1333	10/10/92	GDG
	Blank	<.1	mg/l		1333	10/10/92	GDG
	Standard	2.0	mg/l	2.0	100	1333	10/10/92
	Standard	.93	mg/l	1.0	107	1333	10/10/92
	Standard	.19	mg/l	.20	105	1333	10/10/92
	Standard	1.0	mg/l	1.0	100	1333	10/10/92

Continued

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Standard	2.0	mg/l	2.0		100	1333	10/10/92	GDG
	Standard	1.0	mg/l	1.0		100	1333	10/10/92	GDG
	Standard	2.0	mg/l	2.0		100	1333	10/10/92	GDG
221125	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220640	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220977	Spike		mg/l		1.0	86	1333	10/10/92	GDG
221125	Spike		mg/l		1.0	89	1333	10/10/92	GDG
221330	Spike		mg/l		1.0	91	1333	10/10/92	GDG
221713	Spike		mg/l		1.0	95	1333	10/10/92	GDG
221852	Spike		mg/l		1.0	87	1333	10/10/92	GDG
221859	Spike		mg/l		1.0	87	1333	10/10/92	GDG
222105	Spike		mg/l		1.0	82	1333	10/10/92	GDG
221754	Spike		mg/l		1.0	90	1333	10/10/92	GDG
221756	Spike		mg/l		1.0	97	1333	10/10/92	GDG
221757	Spike		mg/l		1.0	94	1333	10/10/92	GDG
221760	Spike		mg/l		1.0	102	1333	10/10/92	GDG
221948	Spike		mg/l		1.0	93	1333	10/10/92	GDG
220640	Spike		mg/l		1.0	68	1333	10/10/92	GDG
220740	Spike		mg/l		1.0	51	1333	10/10/92	GDG
220742	Spike		mg/l		1.0	68	1333	10/10/92	GDG
221362	Spike		mg/l		2.0	94	1333	10/10/92	GDG
221363	Spike		mg/l		2.0	91	1333	10/10/92	GDG

**TCLP Arsenic (Reg. Limit 5.0)**

	Blank	<.2	mg/l				1333	10/10/92	GDG
	Blank	<1	mg/l				1333	10/10/92	GDG
	Standard	11	mg/l	10		110	1333	10/10/92	GDG
	Standard	5.2	mg/l	5.0		104	1333	10/10/92	GDG
	Standard	5.5	mg/l	5.0		110	1333	10/10/92	GDG
	Standard	1.0	mg/l	1.0		100	1333	10/10/92	GDG
	Standard	5.5	mg/l	5.0		110	1333	10/10/92	GDG
	Standard	11	mg/l	10		110	1333	10/10/92	GDG
	Standard	5.4	mg/l	5.0		108	1333	10/10/92	GDG
	Standard	11	mg/l	10		110	1333	10/10/92	GDG
	Standard	4.6	mg/l	5.0		108	1333	10/10/92	GDG
221125	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220640	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220977	Spike		mg/l		5.0	107	1333	10/10/92	GDG
221125	Spike		mg/l		5.0	108	1333	10/10/92	GDG
221330	Spike		mg/l		5.0	107	1333	10/10/92	GDG
221713	Spike		mg/l		5.0	106	1333	10/10/92	GDG
221852	Spike		mg/l		5.0	102	1333	10/10/92	GDG
221859	Spike		mg/l		5.0	106	1333	10/10/92	GDG
222105	Spike		mg/l		5.0	108	1333	10/10/92	GDG
221754	Spike		mg/l		5.0	117	1333	10/10/92	GDG
221756	Spike		mg/l		5.0	114	1333	10/10/92	GDG
221757	Spike		mg/l		5.0	111	1333	10/10/92	GDG

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
221760	Spike		mg/l		5.0	115	1333	10/10/92	GDG
221948	Spike		mg/l		5.0	113	1333	10/10/92	GDG
220640	Spike		mg/l		1.0	83	1333	10/10/92	GDG
220740	Spike		mg/l		1.0	89	1333	10/10/92	GDG
220742	Spike		mg/l		1.0	76	1333	10/10/92	GDG
221362	Spike		mg/l		1.0	94	1333	10/10/92	GDG
221363	Spike		mg/l		1.0	80	1333	10/10/92	GDG
<b>TCLP Barium (Reg. Limit 100.0)</b>									
	Blank	<1.0	mg/l				1333	10/10/92	GDG
	Blank	<1	mg/l				1333	10/10/92	GDG
	Standard	10	mg/l	10		100	1333	10/10/92	GDG
	Standard	4.9	mg/l	5.0		102	1333	10/10/92	GDG
	Standard	.99	mg/l	1.0		101	1333	10/10/92	GDG
	Standard	4.9	mg/l	5.0		102	1333	10/10/92	GDG
	Standard	10	mg/l	10		100	1333	10/10/92	GDG
	Standard	4.2	mg/l	5.0		117	1333	10/10/92	GDG
	Standard	5.0	mg/l	5.0		100	1333	10/10/92	GDG
	Standard	9.9	mg/l	10		101	1333	10/10/92	GDG
221125	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220640	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220977	Spike		mg/l		5.0	96	1333	10/10/92	GDG
221125	Spike		mg/l		5.0	96	1333	10/10/92	GDG
221330	Spike		mg/l		5.0	98	1333	10/10/92	GDG
221713	Spike		mg/l		5.0	94	1333	10/10/92	GDG
221852	Spike		mg/l		5.0	95	1333	10/10/92	GDG
221859	Spike		mg/l		5.0	95	1333	10/10/92	GDG
222105	Spike		mg/l		5.0	96	1333	10/10/92	GDG
221754	Spike		mg/l		5.0	97	1333	10/10/92	GDG
221756	Spike		mg/l		5.0	98	1333	10/10/92	GDG
221757	Spike		mg/l		5.0	99	1333	10/10/92	GDG
221760	Spike		mg/l		5.0	96	1333	10/10/92	GDG
221948	Spike		mg/l		5.0	98	1333	10/10/92	GDG
220640	Spike		mg/l		5.0	86	1333	10/10/92	GDG
220740	Spike		mg/l		5.0	86	1333	10/10/92	GDG
220742	Spike		mg/l		5.0	85	1333	10/10/92	GDG
221362	Spike		mg/l		5.0	90	1333	10/10/92	GDG
221363	Spike		mg/l		5.0	88	1333	10/10/92	GDG
<b>TCLP Cadmium (Reg. Limit 1.0)</b>									
	Blank	<.01	mg/l				1333	10/10/92	GDG
	Blank	<.1	mg/l				1333	10/10/92	GDG
	Standard	5.0	mg/l	5.0		100	1333	10/10/92	GDG
	Standard	1.0	mg/l	1.0		100	1333	10/10/92	GDG
	Standard	.50	mg/l	.50		100	1333	10/10/92	GDG
	Standard	2.4	mg/l	2.5		104	1333	10/10/92	GDG
	Standard	4.7	mg/l	5.0		106	1333	10/10/92	GDG
	Standard	4.0	mg/l	5.0		122	1333	10/10/92	GDG

Continued



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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Standard	2.4	mg/l	2.5		104	1333	10/10/92	GDG
	Standard	4.7	mg/l	5.0		106	1333	10/10/92	GDG
221125	Duplicate	.03	mg/l	.03		100	1333	10/10/92	GDG
220640	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220977	Spike		mg/l		1.0	96	1333	10/10/92	GDG
221125	Spike		mg/l		1.0	96	1333	10/10/92	GDG
221330	Spike		mg/l		1.0	97	1333	10/10/92	GDG
221713	Spike		mg/l		1.0	95	1333	10/10/92	GDG
221852	Spike		mg/l		1.0	95	1333	10/10/92	GDG
221859	Spike		mg/l		1.0	97	1333	10/10/92	GDG
221754	Spike		mg/l		1.0	101	1333	10/10/92	GDG
221756	Spike		mg/l		1.0	98	1333	10/10/92	GDG
221757	Spike		mg/l		1.0	96	1333	10/10/92	GDG
221760	Spike		mg/l		1.0	96	1333	10/10/92	GDG
221948	Spike		mg/l		1.0	96	1333	10/10/92	GDG
220640	Spike		mg/l		5.0	81	1333	10/10/92	GDG
220740	Spike		mg/l		5.0	82	1333	10/10/92	GDG
220742	Spike		mg/l		5.0	82	1333	10/10/92	GDG
221362	Spike		mg/l		5.0	87	1333	10/10/92	GDG
221363	Spike		mg/l		5.0	88	1333	10/10/92	GDG
222105	Spike		mg/l		1.0	105	1333	10/10/92	GDG

## TCLP Chromium (Reg. Limit 5.0)

	Blank	<.02	mg/l				1333	10/10/92	GDG
	Blank	<.2	mg/l				1333	10/10/92	GDG
	Standard	9.9	mg/l	10		101	1333	10/10/92	GDG
	Standard	5.2	mg/l	5.0		104	1333	10/10/92	GDG
	Standard	.99	mg/l	1.0		101	1333	10/10/92	GDG
	Standard	5.0	mg/l	5.0		100	1333	10/10/92	GDG
	Standard	9.6	mg/l	10		104	1333	10/10/92	GDG
	Standard	4.4	mg/l	5.0		113	1333	10/10/92	GDG
	Standard	5.0	mg/l	5.0		100	1333	10/10/92	GDG
	Standard	9.5	mg/l	10		105	1333	10/10/92	GDG
221125	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220977	Spike		mg/l		5.0	100	1333	10/10/92	GDG
221125	Spike		mg/l		5.0	99	1333	10/10/92	GDG
221330	Spike		mg/l		5.0	100	1333	10/10/92	GDG
221713	Spike		mg/l		5.0	98	1333	10/10/92	GDG
221852	Spike		mg/l		5.0	99	1333	10/10/92	GDG
221859	Spike		mg/l		5.0	101	1333	10/10/92	GDG
222105	Spike		mg/l		5.0	101	1333	10/10/92	GDG
221754	Spike		mg/l		5.0	103	1333	10/10/92	GDG
221756	Spike		mg/l		5.0	104	1333	10/10/92	GDG
221757	Spike		mg/l		5.0	103	1333	10/10/92	GDG
221760	Spike		mg/l		5.0	102	1333	10/10/92	GDG
221948	Spike		mg/l		5.0	103	1333	10/10/92	GDG
220640	Spike		mg/l		5.0	90	1333	10/10/92	GDG

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
220740	Spike		mg/l		5.0	89	1333	10/10/92	GDG
220742	Spike		mg/l		5.0	90	1333	10/10/92	GDG
221362	Spike		mg/l		5.0	95	1333	10/10/92	GDG
221363	Spike		mg/l		5.0	94	1333	10/10/92	GDG
<b>TCLP Mercury (Reg. Limit 0.2)</b>									
	Blank	.001	mg/l				1200	10/18/92	LW
	Blank	.003	mg/l				1200	10/18/92	LW
	Standard	.010	mg/l	.010		100	1200	10/18/92	LW
	Standard	.010	mg/l	.010		100	1200	10/18/92	LW
	Standard	.010	mg/l	.010		100	1200	10/18/92	LW
	Standard	.009	mg/l	.010		111	1200	10/18/92	LW
	Standard	.009	mg/l	.010		111	1200	10/18/92	LW
	Standard	.025	mg/l	.025		100	1200	10/18/92	LW
	Standard	.010	mg/l	.010		100	1200	10/18/92	LW
	Standard	.011	mg/l	.010		110	1200	10/18/92	LW
	Standard	.010	mg/l	.010		100	1200	10/18/92	LW
	Standard	.009	mg/l	.010		111	1200	10/18/92	LW
	Standard	.010	mg/l	.010		100	1200	10/18/92	LW
	Standard	.010	mg/l	.010		100	1200	10/18/92	LW
	Standard	.010	mg/l	.010		100	1200	10/18/92	LW
221125	Duplicate	ND	mg/l	ND		100	1200	10/18/92	LW
221852	Duplicate	ND	mg/l	ND		100	1200	10/18/92	LW
220640	Spike		mg/l		.010	98	1200	10/18/92	LW
220671	Spike		mg/l		.010	79	1200	10/18/92	LW
220732	Spike		mg/l		.010	103	1200	10/18/92	LW
220733	Spike		mg/l		.010	64	1200	10/18/92	LW
220741	Spike		mg/l		.010	79	1200	10/18/92	LW
220742	Spike		mg/l		.010	109	1200	10/18/92	LW
221362	Spike		mg/l		.010	115	1200	10/18/92	LW
221364	Spike		mg/l		.010	90	1200	10/18/92	LW
220977	Spike		mg/l		.010	92	1200	10/18/92	LW
221125	Spike		mg/l		.010	93	1200	10/18/92	LW
221330	Spike		mg/l		.010	73	1200	10/18/92	LW
221713	Spike		mg/l		.010	76	1200	10/18/92	LW
221852	Spike		mg/l		.010	83	1200	10/18/92	LW
221859	Spike		mg/l		.010	72	1200	10/18/92	LW
221948	Spike		mg/l		.010	113	1200	10/18/92	LW
222105	Spike		mg/l		.010	86	1200	10/18/92	LW
221754	Spike		mg/l		.010	106	1200	10/18/92	LW
221756	Spike		mg/l		.010	104	1200	10/18/92	LW
221757	Spike		mg/l		.010	112	1200	10/18/92	LW
221760	Spike		mg/l		.010	112	1200	10/18/92	LW
<b>TCLP Lead (Reg. Limit 5.0)</b>									
	Blank	<.1	mg/l				1333	10/10/92	GDG
	Blank	<1	mg/l				1333	10/10/92	GDG
	Standard	10	mg/l	10		100	1333	10/10/92	GDG

Continued

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Standard	5.2	mg/l	5.0		104	1333	10/10/92	GDG
	Standard	1.0	mg/l	1.0		100	1333	10/10/92	GDG
	Standard	5.0	mg/l	5.0		100	1333	10/10/92	GDG
	Standard	9.9	mg/l	10		101	1333	10/10/92	GDG
	Standard	4.4	mg/l	5.0		113	1333	10/10/92	GDG
	Standard	5.0	mg/l	5.0		100	1333	10/10/92	GDG
	Standard	9.9	mg/l	10		101	1333	10/10/92	GDG
221125	Duplicate	.67	mg/l	.70		104	1333	10/10/92	GDG
220640	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220977	Spike		mg/l		5.0	99	1333	10/10/92	GDG
221125	Spike		mg/l		5.0	99	1333	10/10/92	GDG
221330	Spike		mg/l		5.0	101	1333	10/10/92	GDG
221713	Spike		mg/l		5.0	102	1333	10/10/92	GDG
221852	Spike		mg/l		5.0	99	1333	10/10/92	GDG
221859	Spike		mg/l		5.0	100	1333	10/10/92	GDG
222105	Spike		mg/l		5.0	100	1333	10/10/92	GDG
221754	Spike		mg/l		5.0	102	1333	10/10/92	GDG
221756	Spike		mg/l		5.0	104	1333	10/10/92	GDG
221757	Spike		mg/l		5.0	102	1333	10/10/92	GDG
221760	Spike		mg/l		5.0	100	1333	10/10/92	GDG
221948	Spike		mg/l		5.0	102	1333	10/10/92	GDG
220640	Spike		mg/l		5.0	89	1333	10/10/92	GDG
220740	Spike		mg/l		10	88	1333	10/10/92	GDG
220742	Spike		mg/l		5.0	88	1333	10/10/92	GDG
221362	Spike		mg/l		5.0	92	1333	10/10/92	GDG
221363	Spike		mg/l		5.0	91	1333	10/10/92	GDG
<b>TCLP Selenium (Reg. Limit 1.0)</b>									
	Blank	<.2	mg/l				1333	10/10/92	GDG
	Blank	<1	mg/l				1333	10/10/92	GDG
	Standard	10	mg/l	10		100	1333	10/10/92	GDG
	Standard	.91	mg/l	1.0		109	1333	10/10/92	GDG
	Standard	1.1	mg/l	1.0		110	1333	10/10/92	GDG
	Standard	5.4	mg/l	5.0		108	1333	10/10/92	GDG
	Standard	10	mg/l	10		100	1333	10/10/92	GDG
	Standard	.96	mg/l	1.0		104	1333	10/10/92	GDG
	Standard	5.4	mg/l	5.0		108	1333	10/10/92	GDG
	Standard	10	mg/l	10		100	1333	10/10/92	GDG
221125	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220640	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220977	Spike		mg/l		1.0	95	1333	10/10/92	GDG
221125	Spike		mg/l		1.0	89	1333	10/10/92	GDG
221330	Spike		mg/l		1.0	111	1333	10/10/92	GDG
221713	Spike		mg/l		5.0	95	1333	10/10/92	GDG
221852	Spike		mg/l		1.0	107	1333	10/10/92	GDG
221859	Spike		mg/l		1.0	96	1333	10/10/92	GDG
222105	Spike		mg/l		1.0	100	1333	10/10/92	GDG

Continued



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*Analytical Chemistry • Utility Operations*

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221713 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
221754	Spike		mg/l		5.0	102	1333	10/10/92	GDG
221756	Spike		mg/l		1.0	115	1333	10/10/92	GDG
221757	Spike		mg/l		1.0	102	1333	10/10/92	GDG
221760	Spike		mg/l		1.0	96	1333	10/10/92	GDG
221948	Spike		mg/l		1.0	110	1333	10/10/92	GDG
220640	Spike		mg/l		5.0	89	1333	10/10/92	GDG
220740	Spike		mg/l		1.0	89	1333	10/10/92	GDG
220742	Spike		mg/l		1.0	92	1333	10/10/92	GDG
221362	Spike		mg/l		1.0	100	1333	10/10/92	GDG
221363	Spike		mg/l		1.0	105	1333	10/10/92	GDG

Reported results for TCLP analysis are corrected upward to reflect matrix spike recoveries.

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

**Sample Identification:** FPA-B33-SS5 @13'  
**Collected By:** JPJ  
**Date & Time Taken:** 09/23/92 1640  
**Other Data:** AFSCAPS Job #5735, Tinker AFB  
**Bottle Data:** 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
**Lab Sample Number:** 221710 **Received:** 09/25/92

**Client:** ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1630 09/29/92		EPA Method 3550 *MOD	CRH
Acrolein	ND	ug/kg	0251 10/29/92	500	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0251 10/29/92	500	EPA Method 8240	PM
Benzene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Bromoform	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0251 10/29/92	50	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0251 10/29/92	50	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0251 10/29/92	50	EPA Method 8240	PM
Chloroform	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0251 10/29/92	50	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM

Continued



PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	0251 10/29/92	5.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM -
cis-1,3-Dichloropropene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Toluene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0251 10/29/92	50	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0251 10/29/92	50	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0251 10/29/92	25	EPA Method 8240	PM
Xylenes	ND	ug/kg	0251 10/29/92	50	EPA Method 8240	PM
Total Petroleum Hydrocarbons	750	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO

Quality Assurance for the SET with Sample 221710

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Hydrocarbon Sonication Extract.</b>									
221598	Blank	Completed					1630	09/29/92	CRH
	Duplicate	Completed		Completed		100	1630	09/29/92	CRH
<b>Total Petroleum Hydrocarbons</b>									
221713	Blank	ND	MG/L				1200	09/30/92	TSO
	Blank	ND	MG/KG				1200	09/30/92	TSO
	Standard	152	PPM	150		101	1200	09/30/92	TSO
	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSO
	Duplicate	12	MG/KG	ND		300	1200	09/30/92	TSO
	Duplicate	12	MG/KG	12		100	1200	09/30/92	TSO

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President 172



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B33-SS6 17'-<sup>22</sup>~~20~~'  
Collected By: JPJ  
Date & Time Taken: 09/23/92 1645  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221711 Received: 09/25/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1630 09/29/92		EPA Method 3550 *MOD	CRH
Total Petroleum Hydrocarbons	47	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO

Quality Assurance for the SET with Sample 221711

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Hydrocarbon Sonication Extract.									
221598	Blank	Completed				100	1630	09/29/92	CRH
	Duplicate	Completed		Completed			1630	09/29/92	CRH
Total Petroleum Hydrocarbons									
221713	Blank	ND	MG/L				1200	09/30/92	TSO
	Blank	ND	MG/KG				1200	09/30/92	TSO
	Standard	152	PPM	150		101	1200	09/30/92	TSO
	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSO
221853	Duplicate	12	MG/KG	ND		300	1200	09/30/92	TSO
221872	Duplicate	12	MG/KG	12		100	1200	09/30/92	TSO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B41-SS1 4'-5' "hot"  
Collected By: JPJ  
Date & Time Taken: 09/22/92 0930  
Other Data: Tinker AFB, Job # 5735  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 221510 Received: 09/23/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->ml	2225 09/25/92		EPA Method 3550	LM
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	1502 09/30/92		EPA Method 3550	DDM
Hydrocarbon Sonication Extract.	Completed		1700 09/28/92		EPA Method 3550 *MOD	BTW
Phenols	ND	mg/kg	1800 10/02/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2100 09/29/92		EPA Method 420.1	KC
Naphthalene	2	mg/kg	1900 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	.3	mg/kg	1900 09/30/92	0.05	EPA Method 610	KB
Acenaphthene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Acrolein	ND	ug/kg	0325 10/29/92	500	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0325 10/29/92	500	EPA Method 8240	PM
Anthracene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Benzene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Benzidine	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM

Continued



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Analytical Chemistry • Utility Operations

11/05/92

221510 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Benzo(ghi)perylene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Bromoform	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0325 10/29/92	50	EPA Method 8240	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Carbon Tetrachloride	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0325 10/29/92	50	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0325 10/29/92	50	EPA Method 8240	PM
Chloroform	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0325 10/29/92	50	EPA Method 8240	PM
2-Chloronaphthalene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Dibromochloromethane	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
1,3-Dichlorobenzene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM

Continued  
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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
3,3'-Dichlorobenzidine	ND	ug/kg	1748 11/04/92	670	EPA Method 8270	PM
Bromodichloromethane	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	0325 10/29/92	5.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Diethyl phthalate	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Ethyl benzene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Fluoranthene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Isophorone	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Methylene Chloride	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Naphthalene	350	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Toluene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
1,1,1-Trichloroethane	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0325 10/29/92	50	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0325 10/29/92	50	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0325 10/29/92	25	EPA Method 8240	PM
2-Methylnaphthalene	770	ug/kg	1748 11/04/92	330	EPA Method 8270	PM
Xylenes	ND	ug/kg	0325 10/29/92	50	EPA Method 8240	PM
Total Petroleum Hydrocarbons	210	mg/kg	1300 09/29/92	10	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221510

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Phenols									

Continued

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<.02	mg/l				1800	10/02/92	WMB
	Standard	.050	mg/l	.050		100	1800	10/02/92	WMB
221509	Duplicate	5	mg/kg	5		100	1800	10/02/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/L				1300	09/29/92	TES
	Standard	48	PPM	50		104	1300	09/29/92	TES
221401	Duplicate	1700	MG/KG	2000		116	1300	09/29/92	TES
221408	Duplicate	66000	MG/KG	59000		111	1300	09/29/92	TES
221509	Duplicate	6300	MG/KG	5700		110	1300	09/29/92	TES

**SHIFT 1 STANDARD**

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%


**BATCH 1 BLANK**

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount
Naphthalene	ND(.05) mg/l
2-Methylnaphthalene	ND(.05) mg/l

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B41-SS2 10'-11'  
Collected By: JPJ  
Date & Time Taken: 09/22/92 0930  
Other Data: Tinker AFB, Job # 5735  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 221509 Received: 09/23/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	1519 09/30/92		EPA Method 3550	DDM
Hydrocarbon Sonication Extract.	Completed		1700 09/28/92		EPA Method 3550 *MOD	BTW
Phenols	5.0	mg/kg	1800 10/02/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1800 09/29/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1830 09/30/92	0.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1830 09/30/92	0.05	EPA Method 610	KB
Acrolein	ND	ug/kg	0437 10/29/92	500	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0437 10/29/92	500	EPA Method 8240	PM
Benzene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Bromoform	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0437 10/29/92	50	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0437 10/29/92	50	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0437 10/29/92	50	EPA Method 8240	PM
Chloroform	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0437 10/29/92	50	EPA Method 8240	PM





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Analytical Chemistry • Utility Operations

11/05/92

221509 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dibromochloromethane	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Dichlorodiflouromethane	ND	ug/kg	0437 10/29/92	5.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Toluene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0437 10/29/92	50	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0437 10/29/92	50	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0437 10/29/92	25	EPA Method 8240	PM
Xylenes	ND	ug/kg	0437 10/29/92	50	EPA Method 8240	PM
Total Petroleum Hydrocarbons	6000	mg/kg	1300 09/29/92	100	EPA Method 418.1	TES

Quality Assurance for the SET with Sample 221509

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
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Phenols

Continued



11/05/92

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Analytical Chemistry • Utility Operations

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<.02	mg/l				1800	10/02/92	WMB
	Standard	.050	mg/l	.050		100	1800	10/02/92	WMB
221509	Duplicate	5	mg/kg	5		100	1800	10/02/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/KG				1300	09/29/92	TES
	Blank	ND	MG/L				1300	09/29/92	TES
	Standard	48	PPM	50		104	1300	09/29/92	TES
221401	Duplicate	1700	MG/KG	2000		116	1300	09/29/92	TES
221408	Duplicate	66000	MG/KG	59000		111	1300	09/29/92	TES
221509	Duplicate	6300	MG/KG	5700		110	1300	09/29/92	TES

#### SHIFT 1 STANDARD

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Concent.	Analyzed	Units	Difference
Naphthalene	100	115	mg/l	14%
2-Methylnaphthalene	200	219	mg/l	9%

#### BATCH 1 BLANK

09/30/92 1400

Analyzed by KB using EPA Method 610

Compound Name	Amount
Naphthalene	ND(.05) mg/l
2-Methylnaphthalene	ND(.05) mg/l

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-42-SS1 @5'

Collected By: JPJ

Date & Time Taken: 09/26/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222894

Received: 10/09/92

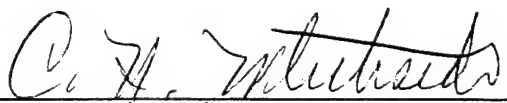
Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	130	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222894

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-42-SS2 @10'  
Collected By: JPJ  
Date & Time Taken: 09/26/92  
Other Data: AFSCAPS Tinker AFB Job #5735  
Bottle Data: 1 -- Other (13)  
Lab Sample Number: 222895

Received: 10/09/92

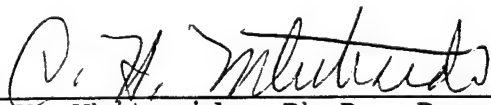
Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	59	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222895

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-42-SS3 @15'

Collected By: JPJ

Date & Time Taken: 09/26/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222896 Received: 10/09/92

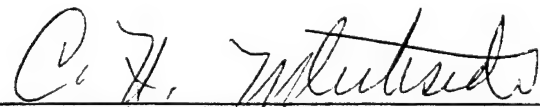
Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	29	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222896

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-47-SS1 @5'  
Collected By: JPJ  
Date & Time Taken: 09/21/92  
Other Data: AFSCAPS Tinker AFB Job #5735  
Bottle Data: 1 -- Other (13)  
Lab Sample Number: 222874

Received: 10/09/92

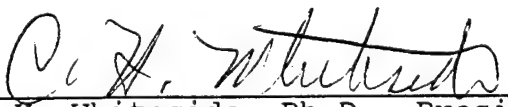
Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	22	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222874

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-47-SS2 @10'

Collected By: JPJ

Date & Time Taken: 09/21/92

Other Data: AFSCAPS Tinker AFB Job #5735

Bottle Data: 1 -- Other (13)

Lab Sample Number: 222875 Received: 10/09/92

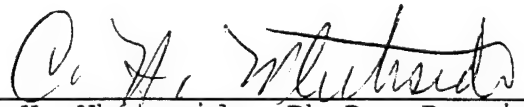
Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	47	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222875

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-47-SS3 @15'  
Collected By: JPJ  
Date & Time Taken: 09/21/92  
Other Data: AFSCAPS Tinker AFB Job #5735  
Bottle Data: 1 -- Other (13)  
Lab Sample Number: 222876

Received: 10/09/92


Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hydrocarbon Sonication Extract.	Completed		1700 10/12/92		EPA Method 3550 *MOD	TEO
Total Petroleum Hydrocarbons	20	mg/kg	0900 10/13/92	10	EPA Method 418.1	TEO

Quality Assurance for the SET with Sample 222876

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	ND	MG/KG				0900	10/13/92	TEO
	Standard	155	PPM	150		103	0900	10/13/92	TEO
222878	Duplicate	120	MG/KG	140		115	0900	10/13/92	TEO
222884	Duplicate	29	MG/KG	27		107	0900	10/13/92	TEO
222886	Duplicate	34	MG/KG	32		106	0900	10/13/92	TEO
222893	Duplicate	32	MG/KG	17		161	0900	10/13/92	TEO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



## **APPENDIX D**

### **ANALYTICAL RESULTS FROM WATER SAMPLES FROM FUEL PURGE AREA**



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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: <sup>β</sup>FPA-701  
Collected By: JPJ  
Date & Time Taken: 09/23/92 0820  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221718 Received: 09/25/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Acrolein	ND	ug/l	1342 10/27/92	100	EPA Method 8240	GO
Acrylonitrile	ND	ug/l	1342 10/27/92	100	EPA Method 8240	GO
Benzene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Bromoform	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Bromomethane	ND	ug/l	1342 10/27/92	10	EPA Method 8240	GO
Carbon Tetrachloride	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Chlorobenzene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Chloroethane	ND	ug/l	1342 10/27/92	10	EPA Method 8240	GO
2-Chloroethylvinyl ether	ND	ug/l	1342 10/27/92	10	EPA Method 8240	GO
Chloroform	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Chloromethane	ND	ug/l	1342 10/27/92	10	EPA Method 8240	GO
Dibromochloromethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Bromodichloromethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
1,1-Dichloroethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
1,2-Dichloroethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
1,1-Dichloroethene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO

Continued



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Analytical Chemistry • Utility Operations

11/05/92

221718 Continued


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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Dichlorodifluoromethane	ND	ug/l	1342 10/27/92	1.0	EPA Method 8240	GO
1,2-Dichloropropane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
cis-1,3-Dichloropropene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Ethyl benzene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Methylene Chloride	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
1,1,2,2-Tetrachloroethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Tetrachloroethene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Toluene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
1,1,1-Trichloroethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
1,1,2-Trichloroethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Trichloroethene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Trichlorofluoromethane	ND	ug/l	1342 10/27/92	10	EPA Method 8240	GO
Vinyl Chloride	ND	ug/l	1342 10/27/92	10	EPA Method 8240	GO
trans-1,3-Dichloropropene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Total Petroleum Hydrocarbons	4.9	mg/l	1030 10/02/92	10	EPA Method 418.1	TSO
Hydrocarbon Liquid Extraction	Completed		1300 10/01/92		EPA Method 3510 *MOD	PLH

Quality Assurance for the SET with Sample 221718

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	0.74	MG/L				1030	10/02/92	TSO
	Standard	150	PPM	150		100	1030	10/02/92	TSO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

**Sample Identification:** FPA-B31 "Hot" JP 4.5

**Collected By:** JPJ

**Date & Time Taken:** 09/23/92 0941

**Other Data:** AFSCAPS Job #5735, Tinker AFB

**Bottle Data:** 2 -- Unpreserved Plastic/Glass (00)

**Lab Sample Number:** 221719 **Received:** 09/25/92

**Client:** ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Acrolein	ND	ug/l	1342 10/27/92	100	EPA Method 8240	GO
Acrylonitrile	ND	ug/l	1342 10/27/92	100	EPA Method 8240	GO
Benzene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Bromoform	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Bromomethane	ND	ug/l	1342 10/27/92	10	EPA Method 8240	GO
Carbon Tetrachloride	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Chlorobenzene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Chloroethane	ND	ug/l	1342 10/27/92	10	EPA Method 8240	GO
2-Chloroethylvinyl ether	ND	ug/l	1342 10/27/92	10	EPA Method 8240	GO
Chloroform	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Chloromethane	ND	ug/l	1342 10/27/92	10	EPA Method 8240	GO
Dibromochloromethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Bromodichloromethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
1,1-Dichloroethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
1,2-Dichloroethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
1,1-Dichloroethene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO



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11/05/92

221719 Continued

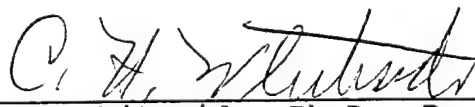
Page 2

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Dichlorodifluoromethane	ND	ug/l	1342 10/27/92	1.0	EPA Method 8240	GO
1,2-Dichloropropane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
cis-1,3-Dichloropropene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Ethyl benzene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Methylene Chloride	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
1,1,2,2-Tetrachloroethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Tetrachloroethene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Toluene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
1,1,1-Trichloroethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
1,1,2-Trichloroethane	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Trichloroethene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Trichlorofluoromethane	ND	ug/l	1342 10/27/92	10	EPA Method 8240	GO
Vinyl Chloride	ND	ug/l	1342 10/27/92	10	EPA Method 8240	GO
trans-1,3-Dichloropropene	ND	ug/l	1342 10/27/92	5.0	EPA Method 8240	GO
Total Petroleum Hydrocarbons	1.6	mg/l	1030 10/02/92	10	EPA Method 418.1	TSO
Hydrocarbon Liquid Extraction	Completed		1300 10/01/92		EPA Method 3510 *MOD	PLH

Quality Assurance for the SET with Sample 221719

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	0.74	MG/L				1030	10/02/92	TSO
	Standard	150	PPM	150		100	1030	10/02/92	TSO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B32  
Collected By: JPJ  
Date & Time Taken: 09/23/92 0920  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221720 Received: 09/25/92


Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Petroleum Hydrocarbons	1.6	mg/l	1030 10/02/92	10	EPA Method 418.1	TSO
Hydrocarbon Liquid Extraction	Completed		1300 10/01/92		EPA Method 3510 *MOD	PLH

Quality Assurance for the SET with Sample 221720

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	0.74	MG/L				1030	10/02/92	TSO
	Standard	150	PPM	150		100	1030	10/02/92	TSC

I certify that the results were generated using the above specified methods.

  
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11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B33  
Collected By: JPJ  
Date & Time Taken: 09/23/92 0910  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221721 Received: 09/25/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Petroleum Hydrocarbons	3.3	mg/l	1030 10/02/92	10	EPA Method 418.1	TSO
Hydrocarbon Liquid Extraction	Completed		1300 10/01/92		EPA Method 3510 *MOD	PLH

Quality Assurance for the SET with Sample 221721

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	0.74	MG/L				1030	10/02/92	TSO
	Standard	150	PPM	150		100	1030	10/02/92	TSO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



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Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B41  
Collected By: JPJ  
Date & Time Taken: 09/23/92 1000  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221722 Received: 09/25/92


Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Petroleum Hydrocarbons	92	mg/l	1030 10/02/92	10	EPA Method 418.1	TSO
Hydrocarbon Liquid Extraction	Completed		1300 10/01/92		EPA Method 3510 *MOD	PLH

Quality Assurance for the SET with Sample 221722

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	0.74	MG/L				1030	10/02/92	TSO
	Standard	150	PPM	150		100	1030	10/02/92	TSO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President





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11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FPA-B45  
Collected By: JPJ  
Date & Time Taken: 09/23/92 0850  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221723 Received: 09/25/92


Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Petroleum Hydrocarbons	4.9	mg/l	1030 10/02/92	10	EPA Method 418.1	TSO
Hydrocarbon Liquid Extraction	Completed		1300 10/01/92		EPA Method 3510 *MOD	PLH

Quality Assurance for the SET with Sample 221723

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	0.74	MG/L				1030	10/02/92	TSO
	Standard	150	PPM	150		100	1030	10/02/92	TSO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President

## **APPENDIX E**

### **ANALYTICAL RESULTS FROM SOIL SAMPLES FROM FIRE TRAINING AREA**



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

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11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FTA-B01-SS1 1'-1.5'  
Collected By: JPJ  
Date & Time Taken: 09/26/92 1646  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 221849 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->4	g->ml	1959 10/21/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		0830 09/30/92		EPA Method 3550 *MOD	JT
Phenols	ND	mg/kg	1230 10/06/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2030 10/02/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1655 10/26/92	.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1655 10/26/92	.05	EPA Method 610	KB
Total Petroleum Hydrocarbons	910	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO

Quality Assurance for the SET with Sample 221849

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Phenols									
222400	Blank	<.02	mg/l				1230	10/06/92	WMB
	Standard	.050	mg/l	.050		100	1230	10/06/92	WMB
	Duplicate	.13	mg/l	.13		100	1230	10/06/92	WMB
Total Petroleum Hydrocarbons									
221713	Blank	ND	MG/L				1200	09/30/92	TSO
	Blank	ND	MG/KG				1200	09/30/92	TSO
	Standard	152	PPM	150		101	1200	09/30/92	TSO
221853	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSO
221872	Duplicate	12	MG/KG	ND		300	1200	09/30/92	TSO
	Duplicate	12	MG/KG	12		100	1200	09/30/92	TSO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FTA-B01-SS1 1'-1.5'  
Collected By: JPJ  
Date & Time Taken: 09/26/92 1646  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221843 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Acrolein	ND	ug/kg	0239 10/31/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0239 10/31/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM

Continued  
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11/05/92

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dichlorodifluoromethane	ND	ug/kg	0239 10/31/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Ethyl benzene	280	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM*
1,1,2,2-Tetrachloroethane	700	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0239 10/31/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0239 10/31/92	5.0	EPA Method 8240	PM
Xylenes	1100	ug/kg	0239 10/31/92	10	EPA Method 8240	PM

In addition to the reported list the following compounds were tentatively identified in approximate concentrations:

Compound	Concentration (ppb)
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I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/06/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FTA-B01-SS4 2.25'-3.0' Hot  
Collected By: JPJ  
Date & Time Taken: 09/26/92 1750  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 221852 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
TCLP Liquid-Liquid Extraction	1000->1	ml->ml	2243 10/08/92		EPA Method 3510	LM
TCLP Liq-Liq Extr. W/Hex Exch.	1000->1	ml->ml	2241 10/08/92		EPA Method 3510	LM
TCLP ZHE Volatile Extraction	100.0% Sol	Completed.	1430 10/01/92		EPA Method 1311	LM
TCLP Extraction	SOLID EXT #1		1510 10/02/92		EPA Method 1311	RJH
Esterification of Sample Extract	Completed.		1500 10/13/92		EPA Method 8150	KB
TCLP Benzene (Reg. Limit 0.5)	.036	mg/l	0025 10/23/92	0.005	EPA Method 8240-TCLP	PM
TCLP Gamma-BHC (Lindane) (.4)	ND	mg/l	1405 10/13/92	0.00004	EPA Method 8080-TCLP	KB
TCLP Carbon Tetrachloride (.5)	ND	mg/l	0025 10/23/92	0.005	EPA Method 8240-TCLP	PM
TCLP Chlordane (Reg. Limit 0.03)	ND	mg/l	1405 10/13/92	0.00014	EPA Method 8080-TCLP	KB
TCLP Chlorobenzene (Limit 100)	ND	mg/l	0025 10/23/92	0.005	EPA Method 8240-TCLP	PM
TCLP Chloroform (Reg. Limit 6.0)	ND	mg/l	0025 10/23/92	0.005	EPA Method 8240-TCLP	PM
TCLP 1,4 Dichlorobenzene: RL 7.5	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM
TCLP 1,2-Dichloroethane (RL .5)	ND	mg/l	0025 10/23/92	0.005	EPA Method 8240-TCLP	PM
TCLP 1,1-Dichloroethene (.7)	ND	mg/l	0025 10/23/92	0.005	EPA Method 8240-TCLP	PM
TCLP 2,4-Dinitrotoluene (.13)	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM
TCLP Endrin (Reg. Limit 0.02)	ND	mg/l	1405 10/13/92	0.00006	EPA Method 8080-TCLP	KB
TCLP Heptachlor (Limit .008)	ND	mg/l	1405 10/13/92	0.00003	EPA Method 8080-TCLP	KB

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
TCLP Heptachlor Epoxide (.008)	ND	mg/l	1405 10/13/92	0.00083	EPA Method 8080-TCLP	KB
TCLP Hexachlorobenzene (.13)	ND	mg/l	0847 11/03/92	0.05	EPA Method 8270-TCLP	PM
TCLP Hexachlorobutadiene (.5)	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM
TCLP Hexachlorethane (Limit 3)	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM
TCLP Nitrobenzene (Limit 2)	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM
TCLP Pentachlorophenol (100)	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM
TCLP Tetrachloroethylene (.7)	ND	mg/l	0025 10/23/92	0.005	EPA Method 8240-TCLP	PM
TCLP Toxaphene (Reg. Limit 0.5)	ND	mg/l	1405 10/13/92	0.0024	EPA Method 8080-TCLP	KB
TCLP Trichloroethylene (.5)	ND	mg/l	0025 10/23/92	0.005	EPA Method 8240-TCLP	PM
TCLP 2,4,6-Trichlorophenol (2)	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM
TCLP Vinyl Chloride (.2)	ND	mg/l	0025 10/23/92	0.01	EPA Method 8240-TCLP	PM
TCLP 2,4 D (Reg. Limit 10)	ND	mg/l	1820 10/13/92	0.012	EPA Method 8150-TCLP	KB
TCLP 2,4,5-Trichlorophenol (400)	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM
TCLP 2,4,5-TP (Silvex) (RL 1)	ND	mg/l	1820 10/13/92	0.0017	EPA Method 8150-TCLP	KB
TCLP Cresol (Reg. Limit 1)	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM
TCLP MEK (Reg. Limit 200)	ND	mg/l	0025 10/23/92	0.05	EPA Method 8240-TCLP	PM
TCLP Methoxychlor (RL 10)	ND	mg/l	1405 10/13/92	0.0018	EPA Method 8080-TCLP	KB
TCLP Pyridine (Reg. Limit 5)	ND	mg/l	0847 11/03/92	0.01	EPA Method 8270-TCLP	PM
Metals Digestion TCLP 3010	Digested	a/s	1600 10/06/92		EPA Method 3010	BWP
Metals Digestion - TCLP 7470	Digested	A/B/S	1000 10/06/92		EPA Method 7470	DKR
TCLP Silver (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.01	EPA Method 6010	GDG
TCLP Arsenic (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.2	EPA Method 6010	GDG
TCLP Barium (Reg. Limit 100.0)	3.3	mg/l	1333 10/10/92	1.0	EPA Method 6010	GDG
TCLP Cadmium (Reg. Limit 1.0)	.01	mg/l	1333 10/10/92	.01	EPA Method 6010	GDG



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11/06/92

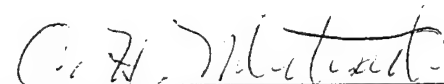
221852 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
TCLP Chromium (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.02	EPA Method 6010	GDG
TCLP Mercury (Reg. Limit 0.2)	ND	mg/l	1200 10/18/92	.001	EPA Method 7470	LW
TCLP Lead (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.1	EPA Method 6010	GDG
TCLP Selenium (Reg. Limit 1.0)	ND	mg/l	1333 10/10/92	.2	EPA Method 6010	GDG

Reported results for TCLP analysis are corrected upward to reflect matrix spike recoveries.

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President





2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

**Sample Identification:** FTA-B01-SS2 3.25'-4.0' Hot  
**Collected By:** JPJ  
**Date & Time Taken:** 09/26/92 1700  
**Other Data:** AFSCAPS Job #5735, Tinker AFB  
**Bottle Data:** 1 -- Unpreserved Plastic/Glass (00)  
**Lab Sample Number:** 221850 **Received:** 09/28/92

**Client:** ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->ml	1953 09/29/92		EPA Method 3550	LM
Total Sonic Extr. W/Hex Exch.	30->4	g->ml	1954 10/21/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		0830 09/30/92		EPA Method 3550 *MOD	JT
Phenols	ND	mg/kg	1230 10/06/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2030 10/02/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1640 10/26/92	.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1640 10/26/92	.05	EPA Method 610	KB
Acenaphthene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Anthracene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Benzidine	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM

Continued

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Bis(2-chloroethoxy)methane	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
2-Chloronaphthalene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
1,3-Dichlorobenzene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	1230 11/05/92	670	EPA Method 8270	PM
Diethyl phthalate	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Fluoranthene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM

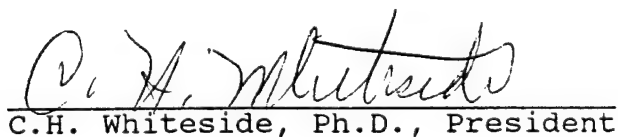
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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Hexachlorocyclopentadiene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Naphthalene	1200	ug/kg	1230 11/05/92	330	EPA Method 8270	PM-
Nitrobenzene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
2-Methylnaphthalene	3200	ug/kg	1230 11/05/92	330	EPA Method 8270	PM
Total Petroleum Hydrocarbons	1900	mg/kg	1200 09/30/92	50	EPA Method 418.1	TSC

**Quality Assurance for the SET with Sample 221850**

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Phenols</b>									
	Blank	<.02	mg/l				1230	10/06/92	WMB
	Standard	.050	mg/l	.050		100	1230	10/06/92	WMB
222400	Duplicate	.13	mg/l	.13		100	1230	10/06/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
	Blank	ND	MG/L				1200	09/30/92	TSC
	Blank	ND	MG/KG				1200	09/30/92	TSC
	Standard	152	PPM	150		101	1200	09/30/92	TSC
221713	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSC
221853	Duplicate	12	MG/KG	ND		300	1200	09/30/92	TSC
221872	Duplicate	12	MG/KG	12		100	1200	09/30/92	TSC

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek


Sample Identification: FTA-B01-SS2 3.25'-4.0'  
Collected By: JPJ  
Date & Time Taken: 09/26/92 1700  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221844 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Acrolein	ND	ug/kg	0011 11/05/92	10000	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0011 11/05/92	10000	EPA Method 8240	PM
Benzene	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Bromoform	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0011 11/05/92	1000	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0011 11/05/92	1000	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0011 11/05/92	1000	EPA Method 8240	PM
Chloroform	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0011 11/05/92	1000	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dichlorodiflouromethane	ND	ug/kg	0011 11/05/92	100	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Ethyl benzene	1400	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Toluene	1500	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0011 11/05/92	1000	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0011 11/05/92	1000	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0011 11/05/92	500	EPA Method 8240	PM
Xylenes	3400	ug/kg	0011 11/05/92	1000	EPA Method 8240	PM

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FTA-B01-SS3 6'-7' Hot  
Collected By: JPJ  
Date & Time Taken: 09/26/92 1700  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 221851 Received: 09/28/92

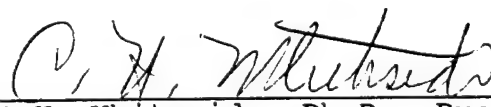
Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	2220 10/21/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		0830 09/30/92		EPA Method 3550 *MOD	JT
Phenols	ND	mg/kg	1230 10/06/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1730 10/05/92		EPA Method 420.1	KC
Naphthalene	ND	mg/kg	1530 10/26/92	.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1530 10/26/92	.05	EPA Method 610	KB
Total Petroleum Hydrocarbons	460	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO

Quality Assurance for the SET with Sample 221851

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Phenols									
222400	Blank	<.02	mg/l				1230	10/06/92	WMB
	Standard	.050	mg/l	.050		100	1230	10/06/92	WMB
	Duplicate	.13	mg/l	.13		100	1230	10/06/92	WMB
Total Petroleum Hydrocarbons									
221713	Blank	ND	MG/L				1200	09/30/92	TSO
	Blank	ND	MG/KG				1200	09/30/92	TSO
	Standard	152	PPM	150		101	1200	09/30/92	TSO
221853	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSO
221853	Duplicate	12	MG/KG	ND		300	1200	09/30/92	TSO
221872	Duplicate	12	MG/KG	12		100	1200	09/30/92	TSO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FTA-B01-SS3 6'-7'  
Collected By: JPJ  
Date & Time Taken: 09/26/92 1700  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221845 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Acrolein	ND	ug/kg	0526 10/31/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0526 10/31/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0526 10/31/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0526 10/31/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0526 10/31/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0526 10/31/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM




11/05/92

221845 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dichlorodifluoromethane	ND	ug/kg	0526 10/31/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Ethyl benzene	63	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	130	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Toluene	16	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0526 10/31/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0526 10/31/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0526 10/31/92	5.0	EPA Method 8240	PM
Xylenes	610	ug/kg	0526 10/31/92	10	EPA Method 8240	PM

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President





2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: FTA-B01-SS5 9.5'-10.0'  
Collected By: JPJ  
Date & Time Taken: 09/26/92 1800  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 221853 Received: 09/28/92


Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->2	g->ml	2223 10/21/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		0830 09/30/92		EPA Method 3550 *MOD	JT
Phenols	ND	mg/kg	1445 10/07/92	2	EPA Method 420.1	WMB
Phenol Distillation	Distilled		1400 10/06/92		EPA Method 420.1	WMB
Naphthalene	ND	mg/kg	1450 10/26/92	.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1450 10/26/92	.05	EPA Method 610	KB
Total Petroleum Hydrocarbons	12	mg/kg	1200 09/30/92	10	EPA Method 418.1	TSO

Quality Assurance for the SET with Sample 221853

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Phenols									
	Blank	<.02	mg/l				1445	10/07/92	WMB
	Standard	.049	mg/l	.050		102	1445	10/07/92	WMB
221858	Duplicate	ND	mg/l	ND		100	1445	10/07/92	WMB
Total Petroleum Hydrocarbons									
	Blank	ND	MG/L				1200	09/30/92	TSO
	Blank	ND	MG/KG				1200	09/30/92	TSO
	Standard	152	PPM	150		101	1200	09/30/92	TSO
221713	Duplicate	760	MG/KG	930		120	1200	09/30/92	TSO
221853	Duplicate	12	MG/KG	ND		300	1200	09/30/92	TSO
221872	Duplicate	12	MG/KG	12		100	1200	09/30/92	TSO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek


**Sample Identification:** FTA-B01-SS5 9.5'-10.0'  
**Collected By:** JPJ  
**Date & Time Taken:** 09/26/92 1800  
**Other Data:** AFSCAPS Job #5735, Tinker AFB  
**Bottle Data:** 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
**Lab Sample Number:** 221846 **Received:** 09/28/92

**Client:** ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Acrolein	ND	ug/kg	1539 10/28/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1539 10/28/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1539 10/28/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1539 10/28/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1539 10/28/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	1539 10/28/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dichlorodifluoromethane	ND	ug/kg	1539 10/28/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Ethyl benzene	250	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Toluene	150	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	13	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	24	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1539 10/28/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1539 10/28/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1539 10/28/92	5.0	EPA Method 8240	PM
Xylenes	1200	ug/kg	1539 10/28/92	10	EPA Method 8240	PM

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

**Sample Identification:** FTA-B04-SS1 1'-2'  
**Collected By:** JPJ  
**Date & Time Taken:** 09/28/92 1245  
**Other Data:** AFSCAPS Job # 5735, Tinker AFB  
**Bottle Data:** 1 -- Unpreserved Plastic/Glass (00)  
1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

**Lab Sample Number:** 222089 **Received:** 09/30/92

**Client:** ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	2207 10/21/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		1100 10/05/92		EPA Method 3550 *MOD	DDM
Phenols	ND	mg/kg	1445 10/12/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2030 10/08/92		EPA Method 420.1	WKC
Naphthalene	ND	mg/kg	1610 10/26/92	.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1610 10/26/92	.05	EPA Method 610	KB
Acrolein	ND	ug/kg	1151 10/31/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	1151 10/31/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	1151 10/31/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	1151 10/31/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	1151 10/31/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	1151 10/31/92	10	EPA Method 8240	PM

Continued

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dibromochloromethane	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	1151 10/31/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	160	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	1151 10/31/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	1151 10/31/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	1151 10/31/92	5.0	EPA Method 8240	PM
Xylenes	80	ug/kg	1151 10/31/92	10	EPA Method 8240	PM
Total Petroleum Hydrocarbons	2300	mg/kg	1000 10/03/92	10	EPA Method 418.1	SK

Quality Assurance for the SET with Sample 222089

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
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Phenols

Continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations


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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<.02	mg/l				1445	10/12/92	WMB
	Standard	.049	mg/l	.050		102	1445	10/12/92	WMB
222839	Duplicate	ND	mg/l	ND		100	1445	10/12/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
	Blank	<.5	mg/l				1000	10/03/92	SK
	Standard	51	mg/l	50		102	1000	10/03/92	SK
222142	Duplicate	ND	mg/l	ND		100	1000	10/03/92	SK

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

**Sample Identification:** FTA-B04-SS2 8'-9'  
**Collected By:** JPJ  
**Date & Time Taken:** 09/28/92 1250  
**Other Data:** AFSCAPS Job # 5735, Tinker AFB  
**Bottle Data:** 1 -- Unpreserved Plastic/Glass (00)  
1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)

**Lab Sample Number:** 222090 **Received:** 09/30/92

**Client:** ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extr. W/Hex Exch.	30->1	g->ml	2201 10/21/92		EPA Method 3550	LM
Hydrocarbon Sonication Extract.	Completed		1100 10/05/92		EPA Method 3550 *MOD	DDM
Phenols	ND	mg/kg	1445 10/12/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		2030 10/08/92		EPA Method 420.1	WKC
Naphthalene	ND	mg/kg	1545 10/26/92	.05	EPA Method 610	KB
2-Methylnaphthalene	ND	mg/kg	1545 10/26/92	.05	EPA Method 610	KB
Acrolein	ND	ug/kg	0025 10/31/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0025 10/31/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0025 10/31/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0025 10/31/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0025 10/31/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0025 10/31/92	10	EPA Method 8240	PM

Continued

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dibromochloromethane	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/kg	0025 10/31/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0025 10/31/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0025 10/31/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0025 10/31/92	5.0	EPA Method 8240	PM
Xylenes	ND	ug/kg	0025 10/31/92	10	EPA Method 8240	PM
Total Petroleum Hydrocarbons	ND	mg/kg	1000 10/03/92	10	EPA Method 418.1	SK

Quality Assurance for the SET with Sample 222090

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Phenols									

Continued  
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222090 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<.02	mg/l				1445	10/12/92	WMB
	Standard	.049	mg/l	.050		102	1445	10/12/92	WMB
222839	Duplicate	ND	mg/l	ND		100	1445	10/12/92	WMB
<b>Total Petroleum Hydrocarbons</b>									
	Blank	<.5	mg/l				1000	10/03/92	SK
	Standard	51	mg/l	50		102	1000	10/03/92	SK
222142	Duplicate	ND	mg/l	ND		100	1000	10/03/92	SK

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President

## **APPENDIX F**

### **ANALYTICAL RESULTS FROM WATER SAMPLES FROM FIRE TRAINING AREA**



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

**Sample Identification:** FTA-B01-W Hot  
**Collected By:** JPJ  
**Date & Time Taken:** 09/26/92 1800  
**Other Data:** AFSCAPS Job #5735, Tinker AFB  
**Bottle Data:** 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
**Lab Sample Number:** 221847 **Received:** 09/28/92

**Client:** ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Acrolein	ND	ug/l	1610 10/27/92	100	EPA Method 8240	GO
Acrylonitrile	ND	ug/l	1610 10/27/92	100	EPA Method 8240	GO
Benzene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Bromoform	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Bromomethane	ND	ug/l	1610 10/27/92	10	EPA Method 8240	GO
Carbon Tetrachloride	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Chlorobenzene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Chloroethane	ND	ug/l	1610 10/27/92	10	EPA Method 8240	GO
2-Chloroethylvinyl ether	ND	ug/l	1610 10/27/92	10	EPA Method 8240	GO
Chloroform	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Chloromethane	ND	ug/l	1610 10/27/92	10	EPA Method 8240	GO
Dibromochloromethane	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Bromodichloromethane	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
1,1-Dichloroethane	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
1,2-Dichloroethane	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
1,1-Dichloroethene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO



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Analytical Chemistry • Utility Operations

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221847 Continued


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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Dichlorodifluoromethane	ND	ug/l	1610 10/27/92	1.0	EPA Method 8240	GO
1,2-Dichloropropane	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
cis-1,3-Dichloropropene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Ethyl benzene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Methylene Chloride	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
1,1,2,2-Tetrachloroethane	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Tetrachloroethene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Toluene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
1,1,1-Trichloroethane	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
1,1,2-Trichloroethane	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Trichloroethene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Trichlorofluoromethane	ND	ug/l	1610 10/27/92	10	EPA Method 8240	GO
Vinyl Chloride	ND	ug/l	1610 10/27/92	10	EPA Method 8240	GO
trans-1,3-Dichloropropene	ND	ug/l	1610 10/27/92	5.0	EPA Method 8240	GO
Total Petroleum Hydrocarbons	3.3	mg/l	1030 10/02/92	10	EPA Method 418.1	TSO
Hydrocarbon Liquid Extraction	Completed		1300 10/01/92		EPA Method 3510 *MOD	PLH

Quality Assurance for the SET with Sample 221847

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Total Petroleum Hydrocarbons									
	Blank	0.74	MG/L				1030	10/02/92	TSO
	Standard	150	PPM	150		100	1030	10/02/92	TSO

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President

## **APPENDIX G**

### **ANALYTICAL RESULTS FROM SOIL SAMPLES FROM INDUSTRIAL WASTEWATER TREATMENT PLANT**



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: WTP-B01-SS1 @16'  
Collected By: JPJ  
Date & Time Taken: 09/23/92 1500  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 221715 Received: 09/25/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->ml	1904 09/29/92		EPA Method 3550	LM
Phenols	ND	mg/kg	1500 10/05/92	1	EPA Method 420.1	WMB
Phenol Distillation	Distilled		1400 10/02/92		EPA Method 420.1	WMB
Total Arsenic	1	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Barium	580	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Cadmium	3	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Chromium	13	mg/kg	1136 10/15/92	.2	EPA Method 6010	RJC
Total Mercury	.06	mg/kg	1400 10/02/92	.05	EPA Method 7470	SY
Total Nickel	8.8	mg/kg	1244 10/14/92	.6	EPA Method 6010	RJC
Total Lead	4	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Zinc	15	mg/kg	1244 10/14/92	.1	EPA Method 6010	RJC
Metals Digestion - 3050 Fl	Digested 50/4		0730 10/09/92		EPA Method 3050 Fl	JHL
Metals Digestion - 7471	Digested 50/1		0845 10/02/92		EPA Method 7471	JHL
Acenaphthene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Anthracene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Benzidine	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM



11/05/92

221715 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Benzo(a)anthracene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
2-Chloronaphthalene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
1,3-Dichlorobenzene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	0900 11/05/92	670	EPA Method 8270	PM
Diethyl phthalate	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM



11/05/92

221715 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
2,6-Dinitrotoluene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Fluoranthene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Naphthalene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM
2-Methylnaphthalene	ND	ug/kg	0900 11/05/92	330	EPA Method 8270	PM

## Quality Assurance for the SET with Sample 221715

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Phenols</b>									
	Blank	<.02	mg/l				1500	10/05/92	WMB
	Standard	.050	mg/l	.050		100	1500	10/05/92	WMB
222287	Duplicate	.02	mg/l	.02		100	1500	10/05/92	WMB
<b>Total Arsenic</b>									
	Blank	<.1	mg/l				1136	10/15/92	RJC

Continued





11/05/92

221715 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	.99	mg/l	1.0		101	1136	10/15/92	RJC
	Standard	2.0	mg/l	2.0		100	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	.7	mg/l	.6		115	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC
221715	Duplicate	1	mg/kg	1		100	1136	10/15/92	RJC
221855	Duplicate	5	mg/kg	3		150	1136	10/15/92	RJC
221864	Duplicate	5	mg/kg	5		100	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	109	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	93	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	109	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	89	1136	10/15/92	RJC
<b>Total Barium</b>									
	Blank	.02	mg/l				1136	10/15/92	RJC
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	5.1	mg/l	5.0		102	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	1.7	mg/l	2.0		116	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.1	mg/l	2.0		105	1136	10/15/92	RJC
	Standard	10	mg/l	10		100	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
221715	Duplicate	580	mg/kg	560		104	1136	10/15/92	RJC
221855	Duplicate	200	mg/kg	180		111	1136	10/15/92	RJC
221864	Duplicate	22	mg/kg	20		110	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	91	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	110	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	98	1136	10/15/92	RJC
<b>Total Cadmium</b>									
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Standard	.53	mg/l	.50		106	1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	2.6	mg/l	2.5		104	1136	10/15/92	RJC
	Standard	.53	mg/l	.50		106	1136	10/15/92	RJC
	Standard	1.7	mg/l	2.0		116	1136	10/15/92	RJC
	Standard	.54	mg/l	.50		108	1136	10/15/92	RJC
	Standard	.52	mg/l	.50		104	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC
221715	Duplicate	3	mg/kg	3		100	1136	10/15/92	RJC
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJC

Continued



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221715 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
221864	Duplicate	3.3	mg/kg	3.0		110	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	96	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	91	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	89	1136	10/15/92	RJC
221715	Spike		mg/l		2.0	104	1136	10/15/92	RJC
<b>Total Chromium</b>									
	Blank	<.02	mg/l				1136	10/15/92	RJC
	Blank	<.02	mg/l				1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	5.3	mg/l	5.0		106	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	.11	mg/l	.10		110	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
222319	Duplicate	.02	mg/l	.02		100	1136	10/15/92	RJC
221715	Duplicate	11	mg/kg	15		131	1136	10/15/92	RJC
221855	Duplicate	8	mg/kg	7		113	1136	10/15/92	RJC
221864	Duplicate	14	mg/kg	12		115	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	99	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	94	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	92	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	92	1136	10/15/92	RJC
<b>Total Mercury</b>									
	Blank	.001	mg/l				1400	10/02/92	SY
	Standard	.026	mg/l	.025		104	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.009	mg/l	.010		111	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
220412	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220803	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220412	Spike		mg/l		.010	64	1400	10/02/92	SY
220803	Spike		mg/l		.010	99	1400	10/02/92	SY
<b>Total Nickel</b>									
	Blank	<.05	mg/l				1244	10/14/92	RJC
	Blank	<.05	mg/l				1244	10/14/92	RJC
	Standard	.40	mg/l	.40		100	1244	10/14/92	RJC
	Standard	2.1	mg/l	2.0		105	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJC
	Standard	1.0	mg/l	1.0		100	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	10	mg/l	10		100	1244	10/14/92	RJC
	Standard	5.5	mg/l	5.0		110	1244	10/14/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1244	10/14/92	RJC

Continued




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221715 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
221715	Duplicate	8.4	mg/kg	9.1		108	1244	10/14/92	RJC
221855	Duplicate	4.6	mg/kg	4.0		114	1244	10/14/92	RJC
222319	Spike		mg/l		2.0	99	1244	10/14/92	RJC
221715	Spike		mg/l		2.0	88	1244	10/14/92	RJC
221855	Spike		mg/l		2.0	92	1244	10/14/92	RJC
<b>Total Lead</b>									
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.1	mg/l	2.0		105	1136	10/15/92	RJC
	Standard	5.2	mg/l	5.0		104	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	.62	mg/l	.60		103	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC
221715	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJC
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJC
221864	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	95	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	90	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	93	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	89	1136	10/15/92	RJC
<b>Total Zinc</b>									
	Blank	<.01	mg/l				1244	10/14/92	RJC
	Blank	.02	mg/l				1244	10/14/92	RJC
	Standard	.21	mg/l	.20		105	1244	10/14/92	RJC
	Standard	2.0	mg/l	2.0		100	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJC
	Standard	1.1	mg/l	1.0		110	1244	10/14/92	RJC
	Standard	5.3	mg/l	5.0		106	1244	10/14/92	RJC
	Standard	10	mg/l	10		100	1244	10/14/92	RJC
222319	Duplicate	.80	mg/l	.77		104	1244	10/14/92	RJC
221715	Duplicate	14	mg/kg	16		113	1244	10/14/92	RJC
221855	Duplicate	7.3	mg/kg	5.9		121	1244	10/14/92	RJC
222319	Spike		mg/l		2.0	95	1244	10/14/92	RJC
221715	Spike		mg/l		2.0	93	1244	10/14/92	RJC
221855	Spike		mg/l		2.0	95	1244	10/14/92	RJC

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: WTP-B02-SS1 @16'  
Collected By: JPJ  
Date & Time Taken: 09/23/92 1530  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 221716 Received: 09/25/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
2-Methylnaphthalene	nd	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Total Sonic Extraction	30->1	g->ml	2003 09/29/92		EPA Method 3550	LM
Phenols	ND	mg/kg	1500 10/05/92	1	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1730 10/02/92		EPA Method 420.1	KC
Total Arsenic	ND	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Barium	230	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Cadmium	3	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Chromium	11	mg/kg	1136 10/15/92	.2	EPA Method 6010	RJC
Total Mercury	ND	mg/kg	1400 10/02/92	.05	EPA Method 7470	SY
Total Nickel	7.6	mg/kg	1244 10/14/92	.6	EPA Method 6010	RJC
Total Lead	4	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Zinc	15	mg/kg	1244 10/14/92	.1	EPA Method 6010	RJC
Metals Digestion - 3050 Fl	Digested 50/4		0730 10/08/92		EPA Method 3050 Fl	JHL
Metals Digestion - 7471	Digested 50/1		0845 10/02/92		EPA Method 7471	JHL
Acenaphthene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Aldrin	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Anthracene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Benzidine	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
2-Chloronaphthalene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
1,3-Dichlorobenzene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	1020 10/01/92	670	EPA Method 8270	PM
Diethyl phthalate	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM

Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Di-n-octylphthalate	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Fluoranthene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Naphthalene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1020 10/01/92	330	EPA Method 8270	PM

## Quality Assurance for the SET with Sample 221716

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Phenols									
	Blank	<.02	mg/l				1500	10/05/92	WMB
	Standard	.050	mg/l	.050		100	1500	10/05/92	WMB
222287	Duplicate	.02	mg/l	.02		100	1500	10/05/92	WMB

Continued



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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Total Arsenic</b>									
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	.99	mg/l	1.0		101	1136	10/15/92	RJC
	Standard	2.0	mg/l	2.0		100	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	.7	mg/l	.6		115	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC
221715	Duplicate	1	mg/kg	1		100	1136	10/15/92	RJC
221855	Duplicate	5	mg/kg	3		150	1136	10/15/92	RJC
221864	Duplicate	5	mg/kg	5		100	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	109	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	93	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	109	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	89	1136	10/15/92	RJC
<b>Total Barium</b>									
	Blank	.02	mg/l				1136	10/15/92	RJC
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	5.1	mg/l	5.0		102	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	1.7	mg/l	2.0		116	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.1	mg/l	2.0		105	1136	10/15/92	RJC
	Standard	10	mg/l	10		100	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
221715	Duplicate	580	mg/kg	560		104	1136	10/15/92	RJC
221855	Duplicate	200	mg/kg	180		111	1136	10/15/92	RJC
221864	Duplicate	22	mg/kg	20		110	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	91	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	110	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	98	1136	10/15/92	RJC
<b>Total Cadmium</b>									
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Standard	.53	mg/l	.50		106	1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	2.6	mg/l	2.5		104	1136	10/15/92	RJC
	Standard	.53	mg/l	.50		106	1136	10/15/92	RJC
	Standard	1.7	mg/l	2.0		116	1136	10/15/92	RJC
	Standard	.54	mg/l	.50		108	1136	10/15/92	RJC
	Standard	.52	mg/l	.50		104	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC

Continued



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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
221715	Duplicate	3	mg/kg	3		100	1136	10/15/92	RJC
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJC
221864	Duplicate	3.3	mg/kg	3.0		110	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	96	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	91	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	89	1136	10/15/92	RJC
221715	Spike		mg/l		2.0	104	1136	10/15/92	RJC
<b>Total Chromium</b>									
	Blank	<.02	mg/l				1136	10/15/92	RJC
	Blank	<.02	mg/l				1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	5.3	mg/l	5.0		106	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	.11	mg/l	.10		110	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
222319	Duplicate	.02	mg/l	.02		100	1136	10/15/92	RJC
221715	Duplicate	11	mg/kg	15		131	1136	10/15/92	RJC
221855	Duplicate	8	mg/kg	7		113	1136	10/15/92	RJC
221864	Duplicate	14	mg/kg	12		115	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	99	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	94	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	92	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	92	1136	10/15/92	RJC
<b>Total Mercury</b>									
	Blank	.001	mg/l				1400	10/02/92	SY
	Standard	.026	mg/l	.025		104	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.009	mg/l	.010		111	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
220412	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220803	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220412	Spike		mg/l		.010	64	1400	10/02/92	SY
220803	Spike		mg/l		.010	99	1400	10/02/92	SY
<b>Total Nickel</b>									
	Blank	<.05	mg/l				1244	10/14/92	RJC
	Blank	<.05	mg/l				1244	10/14/92	RJC
	Standard	.40	mg/l	.40		100	1244	10/14/92	RJC
	Standard	2.1	mg/l	2.0		105	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJC
	Standard	1.0	mg/l	1.0		100	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	10	mg/l	10		100	1244	10/14/92	RJC

Continued





11/05/92

221716 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Standard	5.5	mg/l	5.0		110	1244	10/14/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1244	10/14/92	RJC
221715	Duplicate	8.4	mg/kg	9.1		108	1244	10/14/92	RJC
221855	Duplicate	4.6	mg/kg	4.0		114	1244	10/14/92	RJC
222319	Spike		mg/l		2.0	99	1244	10/14/92	RJC
221715	Spike		mg/l		2.0	88	1244	10/14/92	RJC
221855	Spike		mg/l		2.0	92	1244	10/14/92	RJC
<b>Total Lead</b>									
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.1	mg/l	2.0		105	1136	10/15/92	RJC
	Standard	5.2	mg/l	5.0		104	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	.62	mg/l	.60		103	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC
221715	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJC
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJC
221864	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	95	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	90	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	93	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	89	1136	10/15/92	RJC
<b>Total Zinc</b>									
	Blank	<.01	mg/l				1244	10/14/92	RJC
	Blank	.02	mg/l				1244	10/14/92	RJC
	Standard	.21	mg/l	.20		105	1244	10/14/92	RJC
	Standard	2.0	mg/l	2.0		100	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJC
	Standard	1.1	mg/l	1.0		110	1244	10/14/92	RJC
	Standard	5.3	mg/l	5.0		106	1244	10/14/92	RJC
	Standard	10	mg/l	10		100	1244	10/14/92	RJC
222319	Duplicate	.80	mg/l	.77		104	1244	10/14/92	RJC
221715	Duplicate	14	mg/kg	16		113	1244	10/14/92	RJC
221855	Duplicate	7.3	mg/kg	5.9		121	1244	10/14/92	RJC
222319	Spike		mg/l		2.0	95	1244	10/14/92	RJC
221715	Spike		mg/l		2.0	93	1244	10/14/92	RJC
221855	Spike		mg/l		2.0	95	1244	10/14/92	RJC

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President 239



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: WTP-B03-SS1 @16'  
Collected By: JPJ  
Date & Time Taken: 09/23/92 1625  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 221717 Received: 09/25/92

Client: ARS1

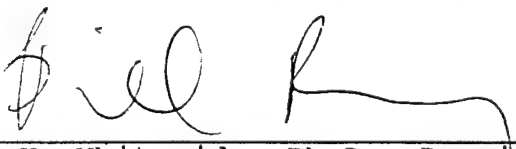
PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->ml	1956 09/29/92		EPA Method 3550	LM
Phenols	ND	mg/kg	1500 10/05/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1730 10/02/92		EPA Method 420.1	KC
Total Arsenic	ND	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Barium	200	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Cadmium	3	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Chromium	11	mg/kg	1136 10/15/92	.2	EPA Method 6010	RJC
Total Mercury	ND	mg/kg	1400 10/02/92	.05	EPA Method 7470	SY
Total Nickel	8.6	mg/kg	1244 10/14/92	.6	EPA Method 6010	RJC
Total Lead	5	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Zinc	16	mg/kg	1244 10/14/92	.1	EPA Method 6010	RJC
Metals Digestion - 3050 Fl	Digested 50/4		0730 10/08/92		EPA Method 3050 Fl	JHL
Metals Digestion - 7471	Digested 50/1		0845 10/02/92		EPA Method 7471	JHL
Acenaphthene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Anthracene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Benzidine	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM

Continued

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Benzo(a)anthracene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
2-Chloronaphthalene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
1,3-Dichlorobenzene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	1140 11/05/92	670	EPA Method 8270	PM
Diethyl phthalate	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
2,6-Dinitrotoluene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Fluoranthene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Naphthalene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM
2-Methylnaphthalene	ND	ug/kg	1140 11/05/92	330	EPA Method 8270	PM

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: WTP-B04-SS1 @16'  
Collected By: JPJ  
Date & Time Taken: 09/25/92 1025  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 221854 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->ml	1959 09/29/92		EPA Method 3550	LM
Phenols	ND	mg/kg	1445 10/07/92	2	EPA Method 420.1	WMB
Phenol Distillation	Distilled		1400 10/06/92		EPA Method 420.1	WMB
Total Arsenic	2	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Barium	260	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Cadmium	3	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Chromium	12	mg/kg	1136 10/15/92	.2	EPA Method 6010	RJC
Total Mercury	ND	mg/kg	1400 10/02/92	.05	EPA Method 7470	SY
Total Nickel	9.8	mg/kg	1244 10/14/92	.6	EPA Method 6010	RJC
Total Lead	4	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Zinc	17	mg/kg	1244 10/14/92	.1	EPA Method 6010	RJC
Metals Digestion - 3050 Fl	Digested 50/4		0730 10/08/92		EPA Method 3050 Fl	JHL
Metals Digestion - 7471	Digested 50/1		0845 10/02/92		EPA Method 7471	JHL
Acenaphthene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Anthracene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Benzidine	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Benzo(a)anthracene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
2-Chloronaphthalene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
1,3-Dichlorobenzene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	1700 11/05/92	670	EPA Method 8270	PM
Diethyl phthalate	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Di-n-octylphthalate	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM




11/05/92

221854 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
2,6-Dinitrotoluene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Fluoranthene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Naphthalene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM
2-Methylnaphthalene	ND	ug/kg	1700 11/05/92	330	EPA Method 8270	PM

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

**Sample Identification:** WTP-B04-SS1 @16'  
**Collected By:** JPJ  
**Date & Time Taken:** 09/25/92 1025  
**Other Data:** AFSCAPS Job #5735, Tinker AFB  
**Bottle Data:** 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
**Lab Sample Number:** 221838 **Received:** 09/28/92

**Client:** ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Acrolein	ND	ug/kg	0721 10/28/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0721 10/28/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0721 10/28/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0721 10/28/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0721 10/28/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0721 10/28/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM





2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

221838 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dichlorodifluoromethane	ND	ug/kg	0721 10/28/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0721 10/28/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0721 10/28/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0721 10/28/92	5.0	EPA Method 8240	PM
Xylenes	ND	ug/kg	0721 10/28/92	10	EPA Method 8240	PM

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: WTP-B05-SS1 @14'  
Collected By: JPJ  
Date & Time Taken: 09/25/92 1122  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 221855 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	10->1	g->ml	1258 09/30/92		EPA Method 3550	DDM
2-Methylnaphthalene	nd	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Phenols	ND	mg/kg	1445 10/07/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1730 10/06/92		EPA Method 420.1	WKC
Total Arsenic	4	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Barium	190	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Cadmium	2	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Chromium	7	mg/kg	1136 10/15/92	.2	EPA Method 6010	RJC
Total Mercury	ND	mg/kg	1400 10/02/92	.05	EPA Method 7470	SY
Total Nickel	4.3	mg/kg	1244 10/14/92	.6	EPA Method 6010	RJC
Total Lead	2	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Zinc	6.6	mg/kg	1244 10/14/92	.1	EPA Method 6010	RJC
Metals Digestion - 3050 FL	Digested 50/4		0730 10/09/92		EPA Method 3050 FL	JHL
Metals Digestion - 7471	Digested 50/1		0845 10/02/92		EPA Method 7471	JHL
Acenaphthene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Aldrin	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Anthracene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Benzidine	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
2-Chloronaphthalene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Chrysene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
1,3-Dichlorobenzene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	1346 10/05/92	2000	EPA Method 8270	PM
Diethyl phthalate	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM



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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Di-n-octylphthalate	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Fluoranthene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Fluorene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Isophorone	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Naphthalene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
Pyrene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1346 10/05/92	1000	EPA Method 8270	PM

## Quality Assurance for the SET with Sample 221855

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Phenols</b>									
	Blank	<.02	mg/l				1445	10/07/92	WMB
	Standard	.049	mg/l	.050		102	1445	10/07/92	WMB
221858	Duplicate	ND	mg/l	ND		100	1445	10/07/92	WMB

Continued

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Total Arsenic</b>									
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	.99	mg/l	1.0		101	1136	10/15/92	RJC
	Standard	2.0	mg/l	2.0		100	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	.7	mg/l	.6		115	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC
221715	Duplicate	1	mg/kg	1		100	1136	10/15/92	RJC
221855	Duplicate	5	mg/kg	3		150	1136	10/15/92	RJC
221864	Duplicate	5	mg/kg	5		100	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	109	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	93	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	109	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	89	1136	10/15/92	RJC
<b>Total Barium</b>									
	Blank	.02	mg/l				1136	10/15/92	RJC
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	5.1	mg/l	5.0		102	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	1.7	mg/l	2.0		116	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.1	mg/l	2.0		105	1136	10/15/92	RJC
	Standard	10	mg/l	10		100	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
221715	Duplicate	580	mg/kg	560		104	1136	10/15/92	RJC
221855	Duplicate	200	mg/kg	180		111	1136	10/15/92	RJC
221864	Duplicate	22	mg/kg	20		110	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	91	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	110	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	98	1136	10/15/92	RJC
<b>Total Cadmium</b>									
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Standard	.53	mg/l	.50		106	1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	2.6	mg/l	2.5		104	1136	10/15/92	RJC
	Standard	.53	mg/l	.50		106	1136	10/15/92	RJC
	Standard	1.7	mg/l	2.0		116	1136	10/15/92	RJC
	Standard	.54	mg/l	.50		108	1136	10/15/92	RJC
	Standard	.52	mg/l	.50		104	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC

Continued



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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
221715	Duplicate	3	mg/kg	3		100	1136	10/15/92	RJC
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJC
221864	Duplicate	3.3	mg/kg	3.0		110	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	96	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	91	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	89	1136	10/15/92	RJC
221715	Spike		mg/l		2.0	104	1136	10/15/92	RJC
<b>Total Chromium</b>									
	Blank	<.02	mg/l				1136	10/15/92	RJC
	Blank	<.02	mg/l				1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	5.3	mg/l	5.0		106	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	.11	mg/l	.10		110	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
222319	Duplicate	.02	mg/l	.02		100	1136	10/15/92	RJC
221715	Duplicate	11	mg/kg	15		131	1136	10/15/92	RJC
221855	Duplicate	8	mg/kg	7		113	1136	10/15/92	RJC
221864	Duplicate	14	mg/kg	12		115	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	99	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	94	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	92	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	92	1136	10/15/92	RJC
<b>Total Mercury</b>									
	Blank	.001	mg/l				1400	10/02/92	SY
	Standard	.026	mg/l	.025		104	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.009	mg/l	.010		111	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
220412	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220803	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220412	Spike		mg/l		.010	64	1400	10/02/92	SY
220803	Spike		mg/l		.010	99	1400	10/02/92	SY
<b>Total Nickel</b>									
	Blank	<.05	mg/l				1244	10/14/92	RJC
	Blank	<.05	mg/l				1244	10/14/92	RJC
	Standard	.40	mg/l	.40		100	1244	10/14/92	RJC
	Standard	2.1	mg/l	2.0		105	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJC
	Standard	1.0	mg/l	1.0		100	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	10	mg/l	10		100	1244	10/14/92	RJC

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Standard	5.5	mg/l	5.0		110	1244	10/14/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1244	10/14/92	RJC
221715	Duplicate	8.4	mg/kg	9.1		108	1244	10/14/92	RJC
221855	Duplicate	4.6	mg/kg	4.0		114	1244	10/14/92	RJC
222319	Spike		mg/l		2.0	99	1244	10/14/92	RJC
221715	Spike		mg/l		2.0	88	1244	10/14/92	RJC
221855	Spike		mg/l		2.0	92	1244	10/14/92	RJC
<b>Total Lead</b>									
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.1	mg/l	2.0		105	1136	10/15/92	RJC
	Standard	5.2	mg/l	5.0		104	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	.62	mg/l	.60		103	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC
221715	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJC
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJC
221864	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	95	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	90	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	93	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	89	1136	10/15/92	RJC
<b>Total Zinc</b>									
	Blank	<.01	mg/l				1244	10/14/92	RJC
	Blank	.02	mg/l				1244	10/14/92	RJC
	Standard	.21	mg/l	.20		105	1244	10/14/92	RJC
	Standard	2.0	mg/l	2.0		100	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJC
	Standard	1.1	mg/l	1.0		110	1244	10/14/92	RJC
	Standard	5.3	mg/l	5.0		106	1244	10/14/92	RJC
	Standard	10	mg/l	10		100	1244	10/14/92	RJC
222319	Duplicate	.80	mg/l	.77		104	1244	10/14/92	RJC
221715	Duplicate	14	mg/kg	16		113	1244	10/14/92	RJC
221855	Duplicate	7.3	mg/kg	5.9		121	1244	10/14/92	RJC
222319	Spike		mg/l		2.0	95	1244	10/14/92	RJC
221715	Spike		mg/l		2.0	93	1244	10/14/92	RJC
221855	Spike		mg/l		2.0	95	1244	10/14/92	RJC

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President 253



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: WTP-B06-SS1 13'-17'  
Collected By: JPJ  
Date & Time Taken: 09/25/92 1140  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 221856 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	10->1	g->ml	1303 09/30/92		EPA Method 3550	DDM
2-Methylnaphthalene	nd	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Phenols	ND	mg/kg	1445 10/07/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1730 10/06/92		EPA Method 420.1	WKC
Total Arsenic	5	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Barium	150	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Cadmium	5	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Chromium	16	mg/kg	1136 10/15/92	.2	EPA Method 6010	RJC
Total Mercury	ND	mg/kg	1400 10/02/92	.05	EPA Method 7470	SY
Total Nickel	3.8	mg/kg	1244 10/14/92	.6	EPA Method 6010	RJC
Total Lead	9	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Zinc	7.1	mg/kg	1244 10/14/92	.1	EPA Method 6010	RJC
Metals Digestion - 3050 Fl	Digested 50/4		0730 10/08/92		EPA Method 3050 Fl	JHL
Metals Digestion - 7471	Digested 50/1		0845 10/02/92		EPA Method 7471	JHL
Acenaphthene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Aldrin	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM





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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Anthracene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Benzidine	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
2-Chloronaphthalene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Chrysene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
1,3-Dichlorobenzene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	1438 10/05/92	2000	EPA Method 8270	PM
Diethyl phthalate	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM



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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Di-n-octylphthalate	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Fluoranthene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Fluorene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Isophorone	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Naphthalene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
Pyrene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1438 10/05/92	1000	EPA Method 8270	PM

## Quality Assurance for the SET with Sample 221856

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Phenols</b>									
	Blank	<.02	mg/l				1445	10/07/92	WMB
	Standard	.049	mg/l	.050		102	1445	10/07/92	WMB
221858	Duplicate	ND	mg/l	ND		100	1445	10/07/92	WMB

Continued



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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Total Arsenic</b>									
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	.99	mg/l	1.0		101	1136	10/15/92	RJC
	Standard	2.0	mg/l	2.0		100	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	.7	mg/l	.6		115	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC
221715	Duplicate	1	mg/kg	1		100	1136	10/15/92	RJC
221855	Duplicate	5	mg/kg	3		150	1136	10/15/92	RJC
221864	Duplicate	5	mg/kg	5		100	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	109	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	93	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	109	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	89	1136	10/15/92	RJC
<b>Total Barium</b>									
	Blank	.02	mg/l				1136	10/15/92	RJC
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	5.1	mg/l	5.0		102	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	1.7	mg/l	2.0		116	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.1	mg/l	2.0		105	1136	10/15/92	RJC
	Standard	10	mg/l	10		100	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
221715	Duplicate	580	mg/kg	560		104	1136	10/15/92	RJC
221855	Duplicate	200	mg/kg	180		111	1136	10/15/92	RJC
221864	Duplicate	22	mg/kg	20		110	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	91	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	110	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	98	1136	10/15/92	RJC
<b>Total Cadmium</b>									
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Standard	.53	mg/l	.50		106	1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	2.6	mg/l	2.5		104	1136	10/15/92	RJC
	Standard	.53	mg/l	.50		106	1136	10/15/92	RJC
	Standard	1.7	mg/l	2.0		116	1136	10/15/92	RJC
	Standard	.54	mg/l	.50		108	1136	10/15/92	RJC
	Standard	.52	mg/l	.50		104	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC

Continued



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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
221715	Duplicate	3	mg/kg	3		100	1136	10/15/92	RJC
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJC
221864	Duplicate	3.3	mg/kg	3.0		110	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	96	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	91	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	89	1136	10/15/92	RJC
221715	Spike		mg/l		2.0	104	1136	10/15/92	RJC
<b>Total Chromium</b>									
	Blank	<.02	mg/l				1136	10/15/92	RJC
	Blank	<.02	mg/l				1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	5.3	mg/l	5.0		106	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	.11	mg/l	.10		110	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
222319	Duplicate	.02	mg/l	.02		100	1136	10/15/92	RJC
221715	Duplicate	11	mg/kg	15		131	1136	10/15/92	RJC
221855	Duplicate	8	mg/kg	7		113	1136	10/15/92	RJC
221864	Duplicate	14	mg/kg	12		115	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	99	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	94	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	92	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	92	1136	10/15/92	RJC
<b>Total Mercury</b>									
	Blank	.001	mg/l				1400	10/02/92	SY
	Standard	.026	mg/l	.025		104	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.009	mg/l	.010		111	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
220412	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220803	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220412	Spike		mg/l		.010	64	1400	10/02/92	SY
220803	Spike		mg/l		.010	99	1400	10/02/92	SY
<b>Total Nickel</b>									
	Blank	<.05	mg/l				1244	10/14/92	RJC
	Blank	<.05	mg/l				1244	10/14/92	RJC
	Standard	.40	mg/l	.40		100	1244	10/14/92	RJC
	Standard	2.1	mg/l	2.0		105	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJC
	Standard	1.0	mg/l	1.0		100	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	10	mg/l	10		100	1244	10/14/92	RJC

Continued




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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Standard	5.5	mg/l	5.0		110	1244	10/14/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1244	10/14/92	RJC
221715	Duplicate	8.4	mg/kg	9.1		108	1244	10/14/92	RJC
221855	Duplicate	4.6	mg/kg	4.0		114	1244	10/14/92	RJC
222319	Spike		mg/l		2.0	99	1244	10/14/92	RJC
221715	Spike		mg/l		2.0	88	1244	10/14/92	RJC
221855	Spike		mg/l		2.0	92	1244	10/14/92	RJC
<b>Total Lead</b>									
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.1	mg/l	2.0		105	1136	10/15/92	RJC
	Standard	5.2	mg/l	5.0		104	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	.62	mg/l	.60		103	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC
221715	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJC
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJC
221864	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	95	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	90	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	93	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	89	1136	10/15/92	RJC
<b>Total Zinc</b>									
	Blank	<.01	mg/l				1244	10/14/92	RJC
	Blank	.02	mg/l				1244	10/14/92	RJC
	Standard	.21	mg/l	.20		105	1244	10/14/92	RJC
	Standard	2.0	mg/l	2.0		100	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJC
	Standard	1.1	mg/l	1.0		110	1244	10/14/92	RJC
	Standard	5.3	mg/l	5.0		106	1244	10/14/92	RJC
	Standard	10	mg/l	10		100	1244	10/14/92	RJC
222319	Duplicate	.80	mg/l	.77		104	1244	10/14/92	RJC
221715	Duplicate	14	mg/kg	16		113	1244	10/14/92	RJC
221855	Duplicate	7.3	mg/kg	5.9		121	1244	10/14/92	RJC
222319	Spike		mg/l		2.0	95	1244	10/14/92	RJC
221715	Spike		mg/l		2.0	93	1244	10/14/92	RJC
221855	Spike		mg/l		2.0	95	1244	10/14/92	RJC

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President 259



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: WTP-B06-SS1 @13'-17'  
Collected By: JPJ  
Date & Time Taken: 09/25/92 1140  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221839 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Acrolein	ND	ug/kg	0756 10/28/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0756 10/28/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0756 10/28/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0756 10/28/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0756 10/28/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0756 10/28/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM




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221839 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dichlorodifluoromethane	ND	ug/kg	0756 10/28/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0756 10/28/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0756 10/28/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0756 10/28/92	5.0	EPA Method 8240	PM
Xylenes	ND	ug/kg	0756 10/28/92	10	EPA Method 8240	PM

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: WTP-B07-SS1 @16'  
Collected By: JPJ  
Date & Time Taken: 09/25/92 1300  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 221857 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	10->1	g->ml	1456 09/30/92		EPA Method 3550	DDM
2-Methylnaphthalene	nd	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Phenols	ND	mg/kg	1445 10/07/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1730 10/06/92		EPA Method 420.1	WKC
Total Arsenic	ND	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Barium	58	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Cadmium	.8	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Chromium	3	mg/kg	1136 10/15/92	.2	EPA Method 6010	RJC
Total Mercury	.06	mg/kg	1400 10/02/92	.05	EPA Method 7470	SY
Total Nickel	2.0	mg/kg	1244 10/14/92	.6	EPA Method 6010	RJC
Total Lead	1	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Zinc	2.6	mg/kg	1244 10/14/92	.1	EPA Method 6010	RJC
Metals Digestion - 3050 Fl	Digested 50/4		0730 10/08/92		EPA Method 3050 Fl	JHL
Metals Digestion - 7471	Digested 50/1		0845 10/02/92		EPA Method 7471	JHL
Acenaphthene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Aldrin	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM

Continued



PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Anthracene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Benzidine	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
2-Chloronaphthalene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Chrysene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
1,3-Dichlorobenzene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	1248 10/05/92	2000	EPA Method 8270	PM
Diethyl phthalate	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Di-n-octylphthalate	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Fluoranthene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Fluorene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Isophorone	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Naphthalene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
Pyrene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1248 10/05/92	1000	EPA Method 8270	PM

Quality Assurance for the SET with Sample 221857

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Phenols</b>									
	Blank	<.02	mg/l				1445	10/07/92	WMB
	Standard	.049	mg/l	.050		102	1445	10/07/92	WMB
221858	Duplicate	ND	mg/l	ND		100	1445	10/07/92	WMB

Continued



11/05/92

221857 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Total Arsenic</b>									
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	.99	mg/l	1.0		101	1136	10/15/92	RJC
	Standard	2.0	mg/l	2.0		100	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	.7	mg/l	.6		115	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC
221715	Duplicate	1	mg/kg	1		100	1136	10/15/92	RJC
221855	Duplicate	5	mg/kg	3		150	1136	10/15/92	RJC
221864	Duplicate	5	mg/kg	5		100	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	109	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	93	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	109	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	89	1136	10/15/92	RJC
<b>Total Barium</b>									
	Blank	.02	mg/l				1136	10/15/92	RJC
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	5.1	mg/l	5.0		102	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	1.7	mg/l	2.0		116	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.1	mg/l	2.0		105	1136	10/15/92	RJC
	Standard	10	mg/l	10		100	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
221715	Duplicate	580	mg/kg	560		104	1136	10/15/92	RJC
221855	Duplicate	200	mg/kg	180		111	1136	10/15/92	RJC
221864	Duplicate	22	mg/kg	20		110	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	91	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	110	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	98	1136	10/15/92	RJC
<b>Total Cadmium</b>									
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Standard	.53	mg/l	.50		106	1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	2.6	mg/l	2.5		104	1136	10/15/92	RJC
	Standard	.53	mg/l	.50		106	1136	10/15/92	RJC
	Standard	1.7	mg/l	2.0		116	1136	10/15/92	RJC
	Standard	.54	mg/l	.50		108	1136	10/15/92	RJC
	Standard	.52	mg/l	.50		104	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC

Continued

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
221715	Duplicate	3	mg/kg	3		100	1136	10/15/92	RJC
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJC
221864	Duplicate	3.3	mg/kg	3.0		110	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	96	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	91	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	89	1136	10/15/92	RJC
221715	Spike		mg/l		2.0	104	1136	10/15/92	RJC
<b>Total Chromium</b>									
	Blank	<.02	mg/l				1136	10/15/92	RJC
	Blank	<.02	mg/l				1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	5.3	mg/l	5.0		106	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	.11	mg/l	.10		110	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
222319	Duplicate	.02	mg/l	.02		100	1136	10/15/92	RJC
221715	Duplicate	11	mg/kg	15		131	1136	10/15/92	RJC
221855	Duplicate	8	mg/kg	7		113	1136	10/15/92	RJC
221864	Duplicate	14	mg/kg	12		115	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	99	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	94	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	92	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	92	1136	10/15/92	RJC
<b>Total Mercury</b>									
	Blank	.001	mg/l				1400	10/02/92	SY
	Standard	.026	mg/l	.025		104	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.009	mg/l	.010		111	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
220412	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220803	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220412	Spike		mg/l		.010	64	1400	10/02/92	SY
220803	Spike		mg/l		.010	99	1400	10/02/92	SY
<b>Total Nickel</b>									
	Blank	<.05	mg/l				1244	10/14/92	RJC
	Blank	<.05	mg/l				1244	10/14/92	RJC
	Standard	.40	mg/l	.40		100	1244	10/14/92	RJC
	Standard	2.1	mg/l	2.0		105	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJC
	Standard	1.0	mg/l	1.0		100	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	10	mg/l	10		100	1244	10/14/92	RJC

Continued




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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Standard	5.5	mg/l	5.0		110	1244	10/14/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1244	10/14/92	RJC
221715	Duplicate	8.4	mg/kg	9.1		108	1244	10/14/92	RJC
221855	Duplicate	4.6	mg/kg	4.0		114	1244	10/14/92	RJC
222319	Spike		mg/l		2.0	99	1244	10/14/92	RJC
221715	Spike		mg/l		2.0	88	1244	10/14/92	RJC
221855	Spike		mg/l		2.0	92	1244	10/14/92	RJC
<b>Total Lead</b>									
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.1	mg/l	2.0		105	1136	10/15/92	RJC
	Standard	5.2	mg/l	5.0		104	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	.62	mg/l	.60		103	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC
221715	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJC
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJC
221864	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	95	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	90	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	93	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	89	1136	10/15/92	RJC
<b>Total Zinc</b>									
	Blank	<.01	mg/l				1244	10/14/92	RJC
	Blank	.02	mg/l				1244	10/14/92	RJC
	Standard	.21	mg/l	.20		105	1244	10/14/92	RJC
	Standard	2.0	mg/l	2.0		100	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJC
	Standard	1.1	mg/l	1.0		110	1244	10/14/92	RJC
	Standard	5.3	mg/l	5.0		106	1244	10/14/92	RJC
	Standard	10	mg/l	10		100	1244	10/14/92	RJC
222319	Duplicate	.80	mg/l	.77		104	1244	10/14/92	RJC
221715	Duplicate	14	mg/kg	16		113	1244	10/14/92	RJC
221855	Duplicate	7.3	mg/kg	5.9		121	1244	10/14/92	RJC
222319	Spike		mg/l		2.0	95	1244	10/14/92	RJC
221715	Spike		mg/l		2.0	93	1244	10/14/92	RJC
221855	Spike		mg/l		2.0	95	1244	10/14/92	RJC

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President 267



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: WTP-B08-SS1 @16'  
Collected By: JPJ  
Date & Time Taken: 09/25/92 1600  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 221858 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Total Sonic Extraction	30->1	g->ml	1450 09/30/92		EPA Method 3550	DDM
2-Methylnaphthalene	nd	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Phenols	ND	mg/kg	1445 10/07/92	5	EPA Method 420.1	WMB
Phenol Distillation	DISTILLED		1730 10/06/92		EPA Method 420.1	WKC
Total Arsenic	4	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Barium	630	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Cadmium	4	mg/kg	1136 10/15/92	.1	EPA Method 6010	RJC
Total Chromium	17	mg/kg	1136 10/15/92	.2	EPA Method 6010	RJC
Total Mercury	.4	mg/kg	1400 10/02/92	.05	EPA Method 7470	SY
Total Nickel	13	mg/kg	1244 10/14/92	.6	EPA Method 6010	RJC
Total Lead	6	mg/kg	1136 10/15/92	1	EPA Method 6010	RJC
Total Zinc	20	mg/kg	1244 10/14/92	.1	EPA Method 6010	RJC
Metals Digestion - 3050 Fl	Digested 50/4		0730 10/09/92		EPA Method 3050 Fl	JHL
Metals Digestion - 7471	Digested 50/1		0845 10/02/92		EPA Method 7471	JHL
Acenaphthene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Acenaphthylene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Aldrin	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Anthracene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Benzidine	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Benzo(a)anthracene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Benzo(a)pyrene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Benzo(b)fluoranthene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Benzo(ghi)perylene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Benzo(k)fluoranthene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Bis(2-chloroisopropyl)ether	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
4-Chlorophenyl phenyl ether	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Benzyl butyl phthalate	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
2-Chloronaphthalene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Chrysene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Dibenzo(a,h)anthracene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
1,3-Dichlorobenzene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
1,2-Dichlorobenzene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
1,4-Dichlorobenzene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND	ug/kg	1544 10/05/92	670	EPA Method 8270	PM
Diethyl phthalate	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Dimethyl phthalate	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Di-n-butylphthalate	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Di-n-octylphthalate	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
2,4-Dinitrotoluene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
2,6-Dinitrotoluene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
1,2-DPH (as azobenzene)	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Fluoranthene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Fluorene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Hexachlorobenzene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Hexachlorobutadiene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Hexachloroethane	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Isophorone	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Naphthalene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Nitrobenzene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
N-nitrosodimethylamine	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
N-nitrosodiphenylamine	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Phenanthrene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
Pyrene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND	ug/kg	1544 10/05/92	330	EPA Method 8270	PM

Quality Assurance for the SET with Sample 221858

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Phenols</b>									
	Blank	<.02	mg/l				1445	10/07/92	WMB
	Standard	.049	mg/l	.050		102	1445	10/07/92	WMB
221858	Duplicate	ND	mg/l	ND		100	1445	10/07/92	WMB

Continued





11/05/92

221858 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
<b>Total Arsenic</b>									
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	.99	mg/l	1.0		101	1136	10/15/92	RJC
	Standard	2.0	mg/l	2.0		100	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	.7	mg/l	.6		115	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC
221715	Duplicate	1	mg/kg	1		100	1136	10/15/92	RJC
221855	Duplicate	5	mg/kg	3		150	1136	10/15/92	RJC
221864	Duplicate	5	mg/kg	5		100	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	109	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	93	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	109	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	89	1136	10/15/92	RJC
<b>Total Barium</b>									
	Blank	.02	mg/l				1136	10/15/92	RJC
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	5.1	mg/l	5.0		102	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	1.7	mg/l	2.0		116	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.1	mg/l	2.0		105	1136	10/15/92	RJC
	Standard	10	mg/l	10		100	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
221715	Duplicate	580	mg/kg	560		104	1136	10/15/92	RJC
221855	Duplicate	200	mg/kg	180		111	1136	10/15/92	RJC
221864	Duplicate	22	mg/kg	20		110	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	91	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	110	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	98	1136	10/15/92	RJC
<b>Total Cadmium</b>									
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Blank	<.01	mg/l				1136	10/15/92	RJC
	Standard	.53	mg/l	.50		106	1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	2.6	mg/l	2.5		104	1136	10/15/92	RJC
	Standard	.53	mg/l	.50		106	1136	10/15/92	RJC
	Standard	1.7	mg/l	2.0		116	1136	10/15/92	RJC
	Standard	.54	mg/l	.50		108	1136	10/15/92	RJC
	Standard	.52	mg/l	.50		104	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC

Continued



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221858 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
221715	Duplicate	3	mg/kg	3		100	1136	10/15/92	RJC
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJC
221864	Duplicate	3.3	mg/kg	3.0		110	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	96	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	91	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	89	1136	10/15/92	RJC
221715	Spike		mg/l		2.0	104	1136	10/15/92	RJC
<b>Total Chromium</b>									
	Blank	<.02	mg/l				1136	10/15/92	RJC
	Blank	<.02	mg/l				1136	10/15/92	RJC
	Standard	2.2	mg/l	2.0		110	1136	10/15/92	RJC
	Standard	5.3	mg/l	5.0		106	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	.11	mg/l	.10		110	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
222319	Duplicate	.02	mg/l	.02		100	1136	10/15/92	RJC
221715	Duplicate	11	mg/kg	15		131	1136	10/15/92	RJC
221855	Duplicate	8	mg/kg	7		113	1136	10/15/92	RJC
221864	Duplicate	14	mg/kg	12		115	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	99	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	94	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	92	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	92	1136	10/15/92	RJC
<b>Total Mercury</b>									
	Blank	.001	mg/l				1400	10/02/92	SY
	Standard	.026	mg/l	.025		104	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
	Standard	.009	mg/l	.010		111	1400	10/02/92	SY
	Standard	.010	mg/l	.010		100	1400	10/02/92	SY
220412	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220803	Duplicate	ND	mg/kg	ND		100	1400	10/02/92	SY
220412	Spike		mg/l		.010	64	1400	10/02/92	SY
220803	Spike		mg/l		.010	99	1400	10/02/92	SY
<b>Total Nickel</b>									
	Blank	<.05	mg/l				1244	10/14/92	RJC
	Blank	<.05	mg/l				1244	10/14/92	RJC
	Standard	.40	mg/l	.40		100	1244	10/14/92	RJC
	Standard	2.1	mg/l	2.0		105	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJC
	Standard	1.0	mg/l	1.0		100	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	10	mg/l	10		100	1244	10/14/92	RJC

Continued




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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Standard	5.5	mg/l	5.0		110	1244	10/14/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1244	10/14/92	RJC
221715	Duplicate	8.4	mg/kg	9.1		108	1244	10/14/92	RJC
221855	Duplicate	4.6	mg/kg	4.0		114	1244	10/14/92	RJC
222319	Spike		mg/l		2.0	99	1244	10/14/92	RJC
221715	Spike		mg/l		2.0	88	1244	10/14/92	RJC
221855	Spike		mg/l		2.0	92	1244	10/14/92	RJC
<b>Total Lead</b>									
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Blank	<.1	mg/l				1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
	Standard	2.1	mg/l	2.0		105	1136	10/15/92	RJC
	Standard	5.2	mg/l	5.0		104	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	1.8	mg/l	2.0		111	1136	10/15/92	RJC
	Standard	1.1	mg/l	1.0		110	1136	10/15/92	RJC
	Standard	.62	mg/l	.60		103	1136	10/15/92	RJC
	Standard	1.0	mg/l	1.0		100	1136	10/15/92	RJC
222319	Duplicate	ND	mg/l	ND		100	1136	10/15/92	RJC
221715	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJC
221855	Duplicate	2	mg/kg	2		100	1136	10/15/92	RJC
221864	Duplicate	5	mg/kg	4		122	1136	10/15/92	RJC
222319	Spike		mg/l		2.0	95	1136	10/15/92	RJC
221855	Spike		mg/l		2.0	90	1136	10/15/92	RJC
221864	Spike		mg/l		2.0	93	1136	10/15/92	RJC
221715	Spike		mg/l		5.0	89	1136	10/15/92	RJC
<b>Total Zinc</b>									
	Blank	<.01	mg/l				1244	10/14/92	RJC
	Blank	.02	mg/l				1244	10/14/92	RJC
	Standard	.21	mg/l	.20		105	1244	10/14/92	RJC
	Standard	2.0	mg/l	2.0		100	1244	10/14/92	RJC
	Standard	5.2	mg/l	5.0		104	1244	10/14/92	RJC
	Standard	1.8	mg/l	2.0		111	1244	10/14/92	RJC
	Standard	1.1	mg/l	1.0		110	1244	10/14/92	RJC
	Standard	5.3	mg/l	5.0		106	1244	10/14/92	RJC
	Standard	10	mg/l	10		100	1244	10/14/92	RJC
222319	Duplicate	.80	mg/l	.77		104	1244	10/14/92	RJC
221715	Duplicate	14	mg/kg	16		113	1244	10/14/92	RJC
221855	Duplicate	7.3	mg/kg	5.9		121	1244	10/14/92	RJC
222319	Spike		mg/l		2.0	95	1244	10/14/92	RJC
221715	Spike		mg/l		2.0	93	1244	10/14/92	RJC
221855	Spike		mg/l		2.0	95	1244	10/14/92	RJC

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President 273



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: WTP-B08-SS1 @16'  
Collected By: JPJ  
Date & Time Taken: 09/25/92 1600  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 1 -- Unpreserved Plastic/Glass (00)  
Lab Sample Number: 221840 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Acrolein	ND	ug/kg	0830 10/28/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/kg	0830 10/28/92	100	EPA Method 8240	PM
Benzene	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/kg	0830 10/28/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/kg	0830 10/28/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/kg	0830 10/28/92	10	EPA Method 8240	PM
Chloroform	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/kg	0830 10/28/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM

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Analytical Chemistry • Utility Operations

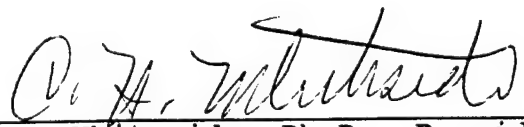
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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Dichlorodifluoromethane	ND	ug/kg	0830 10/28/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
- cis-1,3-Dichloropropene	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
• Methylene Chloride	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/kg	0830 10/28/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/kg	0830 10/28/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/kg	0830 10/28/92	5.0	EPA Method 8240	PM
Xylenes	ND	ug/kg	0830 10/28/92	10	EPA Method 8240	PM

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President

## **APPENDIX H**

### **ANALYTICAL RESULTS FROM WATER SAMPLES FROM INDUSTRIAL WASTEWATER TREATMENT PLANT**



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: WTP-G1  
Collected By: JPJ  
Date & Time Taken: 09/25/92 1624  
Other Data: AFSCAPS Job #5735, Tinker AFB  
WTP-B05, B06, B07 Composite 14'-17'

Bottle Data: 1 -- Unpreserved Plastic/Glass (00)

Lab Sample Number: 221859 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
TCLP Liquid-Liquid Extraction	1000->1	ml->ml	2238 10/08/92		EPA Method 3510	LM
TCLP Liq-Liq Extr. W/Hex Exch.	1000->2	ml->ml	2245 10/08/92		EPA Method 3510	LM
TCLP ZHE Volatile Extraction	100.0% Sol	Completed.	1430 10/06/92		EPA Method 1311	LM
TCLP Extraction	SOLID EXT #1		1510 10/02/92		EPA Method 1311	RJH
Esterification of Sample Extract	Completed.		1500 10/13/92		EPA Method 8150	KB
TCLP Benzene (Reg. Limit 0.5)	ND	mg/l	1747 10/30/92	0.005	EPA Method 8240-TCLP	PM
TCLP Gamma-BHC (Lindane) (.4)	ND	mg/l	1420 10/13/92	0.00008	EPA Method 8080-TCLP	KB
TCLP Carbon Tetrachloride (.5)	ND	mg/l	1747 10/30/92	0.005	EPA Method 8240-TCLP	PM
TCLP Chlordane (Reg. Limit 0.03)	ND	mg/l	1420 10/13/92	0.00028	EPA Method 8080-TCLP	KB
TCLP Chlorobenzene (Limit 100)	ND	mg/l	1747 10/30/92	0.005	EPA Method 8240-TCLP	PM
TCLP Chloroform (Reg. Limit 6.0)	ND	mg/l	1747 10/30/92	0.005	EPA Method 8240-TCLP	PM
TCLP 1,4 Dichlorobenzene: RL 7.5	ND	mg/l	1136 11/03/92	0.01	EPA Method 8270-TCLP	221
TCLP 1,2-Dichloroethane (RL .5)	ND	mg/l	1747 10/30/92	0.005	EPA Method 8240-TCLP	PM
TCLP 1,1-Dichloroethene (.7)	ND	mg/l	1747 10/30/92	0.005	EPA Method 8240-TCLP	PM
TCLP 2,4-Dinitrotoluene (.13)	ND	mg/l	1136 11/03/92	0.01	EPA Method 8270-TCLP	221
TCLP Endrin (Reg. Limit 0.02)	ND	mg/l	1420 10/13/92	0.00012	EPA Method 8080-TCLP	KB
TCLP Heptachlor (Limit .008)	ND	mg/l	1420 10/13/92	0.00006	EPA Method 8080-TCLP	KB

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
TCLP Heptachlor Epoxide (.008)	ND	mg/l	1420 10/13/92	0.0017	EPA Method 8080-TCLP	KB
TCLP Hexachlorobenzene (.13)	ND	mg/l	1136 11/03/92	0.05	EPA Method 8270-TCLP	221
TCLP Hexachlorobutadiene (.5)	ND	mg/l	1136 11/03/92	0.01	EPA Method 8270-TCLP	221
TCLP Hexachlorethane (Limit 3)	ND	mg/l	1136 11/03/92	0.01	EPA Method 8270-TCLP	221
TCLP Nitrobenzene (Limit 2)	ND	mg/l	1136 11/03/92	0.01	EPA Method 8270-TCLP	221
TCLP Pentachlorophenol (100)	ND	mg/l	1136 11/03/92	0.01	EPA Method 8270-TCLP	221
TCLP Tetrachloroethylene (.7)	ND	mg/l	1747 10/30/92	0.005	EPA Method 8240-TCLP	PM
TCLP Toxaphene (Reg. Limit 0.5)	ND	mg/l	1420 10/13/92	0.0048	EPA Method 8080-TCLP	KB
TCLP Trichloroethylene (.5)	ND	mg/l	1747 10/30/92	0.005	EPA Method 8240-TCLP	PM
TCLP 2,4,6-Trichlorophenol (2)	ND	mg/l	1136 11/03/92	0.01	EPA Method 8270-TCLP	221
TCLP Vinyl Chloride (.2)	ND	mg/l	1747 10/30/92	0.01	EPA Method 8240-TCLP	PM
TCLP 2,4 D (Reg. Limit 10)	ND	mg/l	1830 10/13/92	0.024	EPA Method 8150-TCLP	KB
TCLP 2,4,5-Trichlorophenol (400)	ND	mg/l	1136 11/03/92	0.01	EPA Method 8270-TCLP	221
TCLP 2,4,5-TP (Silvex) (RL 1)	ND	mg/l	1830 10/13/92	0.0034	EPA Method 8150-TCLP	KB
TCLP Cresol (Reg. Limit 1)	ND	mg/l	1136 11/03/92	0.01	EPA Method 8270-TCLP	221
TCLP MEK (Reg. Limit 200)	ND	mg/l	1747 10/30/92	0.05	EPA Method 8240-TCLP	PM
TCLP Methoxychlor (RL 10)	ND	mg/l	1420 10/13/92	0.0036	EPA Method 8080-TCLP	KB
TCLP Pyridine (Reg. Limit 5)	ND	mg/l	1136 11/03/92	0.01	EPA Method 8270-TCLP	221
Metals Digestion TCLP 3010	Digested	a/s	1600 10/06/92		EPA Method 3010	BWP
Metals Digestion - TCLP 7470	Digested	A/S	1000 10/06/92		EPA Method 7470	DKR
TCLP Silver (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.01	EPA Method 6010	GDG
TCLP Arsenic (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.2	EPA Method 6010	GDG
TCLP Barium (Reg. Limit 100.0)	2.2	mg/l	1333 10/10/92	1.0	EPA Method 6010	GDG
TCLP Cadmium (Reg. Limit 1.0)	ND	mg/l	1333 10/10/92	.01	EPA Method 6010	GDG

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
TCLP Chromium (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.02	EPA Method 6010	GDG
TCLP Mercury (Reg. Limit 0.2)	ND	mg/l	1200 10/18/92	.001	EPA Method 7470	LW
TCLP Lead (Reg. Limit 5.0)	ND	mg/l	1333 10/10/92	.1	EPA Method 6010	GDG
TCLP Selenium (Reg. Limit 1.0)	ND	mg/l	1333 10/10/92	.2	EPA Method 6010	GDG

## Quality Assurance for the SET with Sample 221859

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
HP Volatile									

## TCLP Silver (Reg. Limit 5.0)

	Blank	<.01	mg/l				1333	10/10/92	GDG
	Blank	<.1	mg/l				1333	10/10/92	GDG
	Standard	2.0	mg/l	2.0		100	1333	10/10/92	GDG
	Standard	.93	mg/l	1.0		107	1333	10/10/92	GDG
	Standard	.19	mg/l	.20		105	1333	10/10/92	GDG
	Standard	1.0	mg/l	1.0		100	1333	10/10/92	GDG
	Standard	2.0	mg/l	2.0		100	1333	10/10/92	GDG
	Standard	1.0	mg/l	1.0		100	1333	10/10/92	GDG
	Standard	2.0	mg/l	2.0		100	1333	10/10/92	GDG
221125	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220640	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220977	Spike		mg/l		1.0	86	1333	10/10/92	GDG
221125	Spike		mg/l		1.0	89	1333	10/10/92	GDG
221330	Spike		mg/l		1.0	91	1333	10/10/92	GDG
221713	Spike		mg/l		1.0	95	1333	10/10/92	GDG
221852	Spike		mg/l		1.0	87	1333	10/10/92	GDG
221859	Spike		mg/l		1.0	87	1333	10/10/92	GDG
222105	Spike		mg/l		1.0	82	1333	10/10/92	GDG
221754	Spike		mg/l		1.0	90	1333	10/10/92	GDG

Continued



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221859 Continued

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
221756	Spike		mg/l		1.0	97	1333	10/10/92	GDG
221757	Spike		mg/l		1.0	94	1333	10/10/92	GDG
221760	Spike		mg/l		1.0	102	1333	10/10/92	GDG
221948	Spike		mg/l		1.0	93	1333	10/10/92	GDG
220640	Spike		mg/l		1.0	68	1333	10/10/92	GDG
220740	Spike		mg/l		1.0	51	1333	10/10/92	GDG
220742	Spike		mg/l		1.0	68	1333	10/10/92	GDG
221362	Spike		mg/l		2.0	94	1333	10/10/92	GDG
221363	Spike		mg/l		2.0	91	1333	10/10/92	GDG

**TCLP Arsenic (Reg. Limit 5.0)**

	Blank	<.2	mg/l				1333	10/10/92	GDG
	Blank	<1	mg/l				1333	10/10/92	GDG
	Standard	11	mg/l	10		110	1333	10/10/92	GDG
	Standard	5.2	mg/l	5.0		104	1333	10/10/92	GDG
	Standard	5.5	mg/l	5.0		110	1333	10/10/92	GDG
	Standard	1.0	mg/l	1.0		100	1333	10/10/92	GDG
	Standard	5.5	mg/l	5.0		110	1333	10/10/92	GDG
	Standard	11	mg/l	10		110	1333	10/10/92	GDG
	Standard	5.4	mg/l	5.0		108	1333	10/10/92	GDG
	Standard	11	mg/l	10		110	1333	10/10/92	GDG
	Standard	4.6	mg/l	5.0		108	1333	10/10/92	GDG
221125	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220640	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220977	Spike		mg/l		5.0	107	1333	10/10/92	GDG
221125	Spike		mg/l		5.0	108	1333	10/10/92	GDG
221330	Spike		mg/l		5.0	107	1333	10/10/92	GDG
221713	Spike		mg/l		5.0	106	1333	10/10/92	GDG
221852	Spike		mg/l		5.0	102	1333	10/10/92	GDG
221859	Spike		mg/l		5.0	106	1333	10/10/92	GDG
222105	Spike		mg/l		5.0	108	1333	10/10/92	GDG
221754	Spike		mg/l		5.0	117	1333	10/10/92	GDG
221756	Spike		mg/l		5.0	114	1333	10/10/92	GDG
221757	Spike		mg/l		5.0	111	1333	10/10/92	GDG
221760	Spike		mg/l		5.0	115	1333	10/10/92	GDG
221948	Spike		mg/l		5.0	113	1333	10/10/92	GDG
220640	Spike		mg/l		1.0	83	1333	10/10/92	GDG
220740	Spike		mg/l		1.0	89	1333	10/10/92	GDG
220742	Spike		mg/l		1.0	76	1333	10/10/92	GDG
221362	Spike		mg/l		1.0	94	1333	10/10/92	GDG
221363	Spike		mg/l		1.0	80	1333	10/10/92	GDG

**TCLP Barium (Reg. Limit 100.0)**

	Blank	<1.0	mg/l				1333	10/10/92	GDG
	Blank	<1	mg/l				1333	10/10/92	GDG
	Standard	10	mg/l	10		100	1333	10/10/92	GDG
	Standard	4.9	mg/l	5.0		102	1333	10/10/92	GDG
	Standard	.99	mg/l	1.0		101	1333	10/10/92	GDG

Continued



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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Standard	4.9	mg/l	5.0		102	1333	10/10/92	GDG
	Standard	10	mg/l	10		100	1333	10/10/92	GDG
	Standard	4.2	mg/l	5.0		117	1333	10/10/92	GDG
	Standard	5.0	mg/l	5.0		100	1333	10/10/92	GDG
	Standard	9.9	mg/l	10		101	1333	10/10/92	GDG
221125	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220640	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220977	Spike		mg/l		5.0	96	1333	10/10/92	GDG
221125	Spike		mg/l		5.0	96	1333	10/10/92	GDG
221330	Spike		mg/l		5.0	98	1333	10/10/92	GDG
221713	Spike		mg/l		5.0	94	1333	10/10/92	GDG
221852	Spike		mg/l		5.0	95	1333	10/10/92	GDG
221859	Spike		mg/l		5.0	95	1333	10/10/92	GDG
222105	Spike		mg/l		5.0	96	1333	10/10/92	GDG
221754	Spike		mg/l		5.0	97	1333	10/10/92	GDG
221756	Spike		mg/l		5.0	98	1333	10/10/92	GDG
221757	Spike		mg/l		5.0	99	1333	10/10/92	GDG
221760	Spike		mg/l		5.0	96	1333	10/10/92	GDG
221948	Spike		mg/l		5.0	98	1333	10/10/92	GDG
220640	Spike		mg/l		5.0	86	1333	10/10/92	GDG
220740	Spike		mg/l		5.0	86	1333	10/10/92	GDG
220742	Spike		mg/l		5.0	85	1333	10/10/92	GDG
221362	Spike		mg/l		5.0	90	1333	10/10/92	GDG
221363	Spike		mg/l		5.0	88	1333	10/10/92	GDG

## TCLP Cadmium (Reg. Limit 1.0)

	Blank	<.01	mg/l				1333	10/10/92	GDG
	Blank	<.1	mg/l				1333	10/10/92	GDG
	Standard	5.0	mg/l	5.0		100	1333	10/10/92	GDG
	Standard	1.0	mg/l	1.0		100	1333	10/10/92	GDG
	Standard	.50	mg/l	.50		100	1333	10/10/92	GDG
	Standard	2.4	mg/l	2.5		104	1333	10/10/92	GDG
	Standard	4.7	mg/l	5.0		106	1333	10/10/92	GDG
	Standard	4.0	mg/l	5.0		122	1333	10/10/92	GDG
	Standard	2.4	mg/l	2.5		104	1333	10/10/92	GDG
	Standard	4.7	mg/l	5.0		106	1333	10/10/92	GDG
221125	Duplicate	.03	mg/l	.03		100	1333	10/10/92	GDG
220640	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220977	Spike		mg/l		1.0	96	1333	10/10/92	GDG
221125	Spike		mg/l		1.0	96	1333	10/10/92	GDG
221330	Spike		mg/l		1.0	97	1333	10/10/92	GDG
221713	Spike		mg/l		1.0	95	1333	10/10/92	GDG
221852	Spike		mg/l		1.0	95	1333	10/10/92	GDG
221859	Spike		mg/l		1.0	97	1333	10/10/92	GDG
221754	Spike		mg/l		1.0	101	1333	10/10/92	GDG
221756	Spike		mg/l		1.0	98	1333	10/10/92	GDG
221757	Spike		mg/l		1.0	96	1333	10/10/92	GDG

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THE COMPLETE SERVICE LAB

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
221760	Spike		mg/l		1.0	96	1333	10/10/92	GDG
221948	Spike		mg/l		1.0	96	1333	10/10/92	GDG
220640	Spike		mg/l		5.0	81	1333	10/10/92	GDG
220740	Spike		mg/l		5.0	82	1333	10/10/92	GDG
220742	Spike		mg/l		5.0	82	1333	10/10/92	GDG
221362	Spike		mg/l		5.0	87	1333	10/10/92	GDG
221363	Spike		mg/l		5.0	88	1333	10/10/92	GDG
222105	Spike		mg/l		1.0	105	1333	10/10/92	GDG

**TCLP Chromium (Reg. Limit 5.0)**

	Blank	<.02	mg/l				1333	10/10/92	GDG
	Blank	<.2	mg/l				1333	10/10/92	GDG
	Standard	9.9	mg/l	10		101	1333	10/10/92	GDG
	Standard	5.2	mg/l	5.0		104	1333	10/10/92	GDG
	Standard	.99	mg/l	1.0		101	1333	10/10/92	GDG
	Standard	5.0	mg/l	5.0		100	1333	10/10/92	GDG
	Standard	9.6	mg/l	10		104	1333	10/10/92	GDG
	Standard	4.4	mg/l	5.0		113	1333	10/10/92	GDG
	Standard	5.0	mg/l	5.0		100	1333	10/10/92	GDG
	Standard	9.5	mg/l	10		105	1333	10/10/92	GDG
221125	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220977	Spike		mg/l		5.0	100	1333	10/10/92	GDG
221125	Spike		mg/l		5.0	99	1333	10/10/92	GDG
221330	Spike		mg/l		5.0	100	1333	10/10/92	GDG
221713	Spike		mg/l		5.0	98	1333	10/10/92	GDG
221852	Spike		mg/l		5.0	99	1333	10/10/92	GDG
221859	Spike		mg/l		5.0	101	1333	10/10/92	GDG
222105	Spike		mg/l		5.0	101	1333	10/10/92	GDG
221754	Spike		mg/l		5.0	103	1333	10/10/92	GDG
221756	Spike		mg/l		5.0	104	1333	10/10/92	GDG
221757	Spike		mg/l		5.0	103	1333	10/10/92	GDG
221760	Spike		mg/l		5.0	102	1333	10/10/92	GDG
221948	Spike		mg/l		5.0	103	1333	10/10/92	GDG
220640	Spike		mg/l		5.0	90	1333	10/10/92	GDG
220740	Spike		mg/l		5.0	89	1333	10/10/92	GDG
220742	Spike		mg/l		5.0	90	1333	10/10/92	GDG
221362	Spike		mg/l		5.0	95	1333	10/10/92	GDG
221363	Spike		mg/l		5.0	94	1333	10/10/92	GDG

**TCLP Mercury (Reg. Limit 0.2)**

	Blank	.001	mg/l				1200	10/18/92	LW
	Blank	.003	mg/l				1200	10/18/92	LW
	Standard	.010	mg/l	.010		100	1200	10/18/92	LW
	Standard	.010	mg/l	.010		100	1200	10/18/92	LW
	Standard	.010	mg/l	.010		100	1200	10/18/92	LW
	Standard	.009	mg/l	.010		111	1200	10/18/92	LW
	Standard	.009	mg/l	.010		111	1200	10/18/92	LW
	Standard	.025	mg/l	.025		100	1200	10/18/92	LW

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Standard	.010	mg/l	.010		100	1200	10/18/92	LW
	Standard	.011	mg/l	.010		110	1200	10/18/92	LW
	Standard	.010	mg/l	.010		100	1200	10/18/92	LW
	Standard	.009	mg/l	.010		111	1200	10/18/92	LW
	Standard	.010	mg/l	.010		100	1200	10/18/92	LW
	Standard	.010	mg/l	.010		100	1200	10/18/92	LW
	Standard	.010	mg/l	.010		100	1200	10/18/92	LW
221125	Duplicate	ND	mg/l	ND		100	1200	10/18/92	LW
221852	Duplicate	ND	mg/l	ND		100	1200	10/18/92	LW
220640	Spike		mg/l		.010	98	1200	10/18/92	LW
220671	Spike		mg/l		.010	79	1200	10/18/92	LW
220732	Spike		mg/l		.010	103	1200	10/18/92	LW
220733	Spike		mg/l		.010	64	1200	10/18/92	LW
220741	Spike		mg/l		.010	79	1200	10/18/92	LW
220742	Spike		mg/l		.010	109	1200	10/18/92	LW
221362	Spike		mg/l		.010	115	1200	10/18/92	LW
221364	Spike		mg/l		.010	90	1200	10/18/92	LW
220977	Spike		mg/l		.010	92	1200	10/18/92	LW
221125	Spike		mg/l		.010	93	1200	10/18/92	LW
221330	Spike		mg/l		.010	73	1200	10/18/92	LW
221713	Spike		mg/l		.010	76	1200	10/18/92	LW
221852	Spike		mg/l		.010	83	1200	10/18/92	LW
221859	Spike		mg/l		.010	72	1200	10/18/92	LW
221948	Spike		mg/l		.010	113	1200	10/18/92	LW
222105	Spike		mg/l		.010	86	1200	10/18/92	LW
221754	Spike		mg/l		.010	106	1200	10/18/92	LW
221756	Spike		mg/l		.010	104	1200	10/18/92	LW
221757	Spike		mg/l		.010	112	1200	10/18/92	LW
221760	Spike		mg/l		.010	112	1200	10/18/92	LW
<b>TCLP Lead (Reg. Limit 5.0)</b>									
	Blank	<.1	mg/l				1333	10/10/92	GDG
	Blank	<1	mg/l				1333	10/10/92	GDG
	Standard	10	mg/l	10		100	1333	10/10/92	GDG
	Standard	5.2	mg/l	5.0		104	1333	10/10/92	GDG
	Standard	1.0	mg/l	1.0		100	1333	10/10/92	GDG
	Standard	5.0	mg/l	5.0		100	1333	10/10/92	GDG
	Standard	9.9	mg/l	10		101	1333	10/10/92	GDG
	Standard	4.4	mg/l	5.0		113	1333	10/10/92	GDG
	Standard	5.0	mg/l	5.0		100	1333	10/10/92	GDG
	Standard	9.9	mg/l	10		101	1333	10/10/92	GDG
221125	Duplicate	.67	mg/l	.70		104	1333	10/10/92	GDG
220640	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220977	Spike		mg/l		5.0	99	1333	10/10/92	GDG
221125	Spike		mg/l		5.0	99	1333	10/10/92	GDG
221330	Spike		mg/l		5.0	101	1333	10/10/92	GDG
221713	Spike		mg/l		5.0	102	1333	10/10/92	GDG

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Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
221852	Spike		mg/l		5.0	99	1333	10/10/92	GDG
221859	Spike		mg/l		5.0	100	1333	10/10/92	GDG
222105	Spike		mg/l		5.0	100	1333	10/10/92	GDG
221754	Spike		mg/l		5.0	102	1333	10/10/92	GDG
221756	Spike		mg/l		5.0	104	1333	10/10/92	GDG
221757	Spike		mg/l		5.0	102	1333	10/10/92	GDG
221760	Spike		mg/l		5.0	100	1333	10/10/92	GDG
221948	Spike		mg/l		5.0	102	1333	10/10/92	GDG
220640	Spike		mg/l		5.0	89	1333	10/10/92	GDG
220740	Spike		mg/l		10	88	1333	10/10/92	GDG
220742	Spike		mg/l		5.0	88	1333	10/10/92	GDG
221362	Spike		mg/l		5.0	92	1333	10/10/92	GDG
221363	Spike		mg/l		5.0	91	1333	10/10/92	GDG
<b>TCLP Selenium (Reg. Limit 1.0)</b>									
	Blank	<.2	mg/l				1333	10/10/92	GDG
	Blank	<1	mg/l				1333	10/10/92	GDG
	Standard	10	mg/l	10		100	1333	10/10/92	GDG
	Standard	.91	mg/l	1.0		109	1333	10/10/92	GDG
	Standard	1.1	mg/l	1.0		110	1333	10/10/92	GDG
	Standard	5.4	mg/l	5.0		108	1333	10/10/92	GDG
	Standard	10	mg/l	10		100	1333	10/10/92	GDG
	Standard	.96	mg/l	1.0		104	1333	10/10/92	GDG
	Standard	5.4	mg/l	5.0		108	1333	10/10/92	GDG
	Standard	10	mg/l	10		100	1333	10/10/92	GDG
221125	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220640	Duplicate	ND	mg/l	ND		100	1333	10/10/92	GDG
220977	Spike		mg/l		1.0	95	1333	10/10/92	GDG
221125	Spike		mg/l		1.0	89	1333	10/10/92	GDG
221330	Spike		mg/l		1.0	111	1333	10/10/92	GDG
221713	Spike		mg/l		5.0	95	1333	10/10/92	GDG
221852	Spike		mg/l		1.0	107	1333	10/10/92	GDG
221859	Spike		mg/l		1.0	96	1333	10/10/92	GDG
222105	Spike		mg/l		1.0	100	1333	10/10/92	GDG
221754	Spike		mg/l		5.0	102	1333	10/10/92	GDG
221756	Spike		mg/l		1.0	115	1333	10/10/92	GDG
221757	Spike		mg/l		1.0	102	1333	10/10/92	GDG
221760	Spike		mg/l		1.0	96	1333	10/10/92	GDG
221948	Spike		mg/l		1.0	110	1333	10/10/92	GDG
220640	Spike		mg/l		5.0	89	1333	10/10/92	GDG
220740	Spike		mg/l		1.0	89	1333	10/10/92	GDG
220742	Spike		mg/l		1.0	92	1333	10/10/92	GDG
221362	Spike		mg/l		1.0	100	1333	10/10/92	GDG
221363	Spike		mg/l		1.0	105	1333	10/10/92	GDG

Reported results for TCLP analysis are corrected upward to reflect matrix spike recoveries.

I certify that the results were generated using the above specified methods.

C.H. Whiteside, Ph.D., President 285



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Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: WTP-B04  
Collected By: JPJ  
Date & Time Taken: 09/26/92 1030  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221842 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Acrolein	ND	ug/l	0151 10/27/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	0151 10/27/92	100	EPA Method 8240	PM
Benzene	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/l	0151 10/27/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/l	0151 10/27/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	0151 10/27/92	10	EPA Method 8240	PM
Chloroform	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/l	0151 10/27/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM



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Analytical Chemistry • Utility Operations


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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	29	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/l	0151 10/27/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	0151 10/27/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	0151 10/27/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	0151 10/27/92	5.0	EPA Method 8240	PM

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President





2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

11/05/92

Applied Research Associates  
RR #1, Box 120-A  
Waterman Road  
South Royalton, VT 05068-  
Attention: Jack Jemsek

Sample Identification: WTP-B06  
Collected By: JPJ  
Date & Time Taken: 09/26/92 1100  
Other Data: AFSCAPS Job #5735, Tinker AFB  
Bottle Data: 2 -- 40 ml Glass Vial (Zero Headspace) with a Teflon Lined Lid (04)  
Lab Sample Number: 221841 Received: 09/28/92

Client: ARS1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Xylenes	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Acrolein	ND	ug/l	0116 10/27/92	100	EPA Method 8240	PM
Acrylonitrile	ND	ug/l	0116 10/27/92	100	EPA Method 8240	PM
Benzene	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Bromoform	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Bromomethane	ND	ug/l	0116 10/27/92	10	EPA Method 8240	PM
Carbon Tetrachloride	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Chlorobenzene	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Chloroethane	ND	ug/l	0116 10/27/92	10	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND	ug/l	0116 10/27/92	10	EPA Method 8240	PM
Chloroform	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Chloromethane	ND	ug/l	0116 10/27/92	10	EPA Method 8240	PM
Dibromochloromethane	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Bromodichloromethane	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
1,1-Dichloroethane	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
1,2-Dichloroethane	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
1,1-Dichloroethene	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM



11/05/92

221841 Continued

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PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
trans-1,2-Dichloroethene	37	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Dichlorodifluoromethane	ND	ug/l	0116 10/27/92	1.0	EPA Method 8240	PM
1,2-Dichloropropane	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Ethyl benzene	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Methylene Chloride	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Tetrachloroethene	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Toluene	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
1,1,1-Trichloroethane	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
1,1,2-Trichloroethane	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Trichloroethene	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM
Trichlorofluoromethane	ND	ug/l	0116 10/27/92	10	EPA Method 8240	PM
Vinyl Chloride	ND	ug/l	0116 10/27/92	10	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND	ug/l	0116 10/27/92	5.0	EPA Method 8240	PM

I certify that the results were generated using the above specified methods.

  
C.H. Whiteside, Ph.D., President